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## IN BRIEF

A new company, Zone Distribution, has been formed to distribute software on home computer disks.

In one deal it will handle Electronic Systems, which produces a range of products for the ZX81 and the Spectrum.

Zone Distribution, 15 Old Court, Long Melford, Suffolk

♦ ♦ ♦

Now you can edit a BBC Spectrum, with *ClonedData*, which has brought out a £4.95 cassette called *Cloned*.

Time has about passed and it will work on what you need to suit healthy or less healthy, giving the choice of more than 100 types of load.

*ClonedData*, 20 Friars Quay, Colgate, Norwich, Norfolk NR1 1ES

♦ ♦ ♦

*Challwell*, which specialises in educational programs for the VIC-20, BBC micro and the Spectrum, has signed deals to sell its software in Australia and South Africa.

A spokesman said other deals were pending for European countries and said it planned the worldwide popularity of British computer software.

*Challwell*, Lewesham Cottage, Penelope, Wottonville, Somerset DA21 5AL

## Let us know

If you own the latest computer business, please keep us in touch with what your company is doing. News items and review samples of your products — software and hardware — should be sent to: Paul Lupton, Home Computing Weekly, 145 Charing Cross Road, London WC2N 6EE. Phone: 01-437 1002

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## BUY THIS SPACE

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Continued from front page

supplies of hundreds of programs. Several said they hoped the new company would be the business, leading to less choice for customers.

The High Court proceedings, attended by Mr. Canning and Quicke's managing director Nick Lambert, were adjourned for four days.

In the meantime, both sides undertook, one to dispute the case with anyone not involved in the proceedings.

Adrian Kelman, counsel for Quicke's, told Mr Justice Mayne Davies that it would not be a breach of the undertaking to "say that negotiations are in take place, or are taking place, or have taken place and that there is no further progress."

Quicke's also undertook at the moment not to "demand, encourage or induce" any person to refuse or accept any advertisement placed by Computer Aided Systems or Software Centre or to refuse to accept or fulfil any order for the supply of software to Computer Aided Systems or Software Centre.

Mr Kelman said it was possible that the parties might come to an agreement before the end of the four-day adjournment.

## LATE NEWS

## "Agreement in sight"

Talks to settle disputes took the producing agreement. High Court Justice told.

Mr Justice Mayne Davies adjourned proceedings to April 13.

Earlier undertaking not to discuss the case with anyone not involved.

## Island welcome

John Lloyd's five-minute interview on Radio Cumbria led to so much response that a club for ZX computer users has been formed.

Details from John at the 3, Wighams Road, Loughs, St Peter Port. Phone 0481 32943

Editor: Ben Harris  
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checking results that.

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rize that all the facilities needed to connect most  
cassette recorders and TV's a software  
catalogue of 75 programs available, some take 50  
the Jupiter Ace manual into 1600 characters  
catalogue of 5 programs.

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introduction to personal computing and a  
simple-to-follow course in PORTH from first  
principles to confident programming.

Plug on 16k and 16k memory expansions  
are also available at very competitive prices.  
(There's 1 for a plug-on screen interface, available  
soon, too).

It's like giving the man who makes how  
cheaply the man who makes how to design the  
Jupiter Ace makes PORTH, whatever you want to  
make when a fully price £99.95. 1600 characters 5.



#### Technical Information

##### Hardware

8004, 8080, 8084, 8088

##### Keyboard

40 moving keys, auto repeat, Caps Lock

##### Screen

Memory mapped 32 x 24 line display, 800  
display upper and lower case characters

##### Graphics

High resolution 256 x 128 pixel user defined  
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## Continued from Front Cover

Mr. Tilly, 38, said "I don't know how many networks we will get — someone's ever done it before — but I would expect about three million."

He explained how he thought up the idea: "Our department, Continuing Education, has done no such on Sunday mornings and we felt we ought to do more with them."

"I wanted to do something outstanding on a Sunday morning. I had a few ideas and when I started working on Make the Most of the Micro I had the idea of a phone-in. This was after Tuesday City, on Radio Four, had a program about microcomputers and got an awful lot of response."

"There's such an interest in microcomputers and we have the expertise in our team... after all, we are the only people doing anything in this area on TV."

"David Allen, the producer, and I sit down and thrashed it out. I believe quite strongly though, that ideas are nothing — it's putting the show together that counts."

"We wanted to do it at the end of the month, but the idea was too late. So now it's going out at the beginning of the month."

"I would like readers of Home Computing Weekly to write in and tell us what they would like to see in the show. If they include a definite phone number and questions for our panel they may be able to put them to the team by phone during the show."



Ian McNaughton-Dore

Among the features of the show will be "one-to-ones" from the series — including a series showing Mr. McNaughton-Dore, demonstrating an older computer, inserting punched cards in-

to a food tray. Suddenly the cards leap out and shower over the floor.

There will be a general discussion, a demonstration by John Coll, film of stars with their computers, an item on jingles and film showing the work of the Postage Data Centre.

There will also be a live interview with an information technology minister Kenneth Baker.

Mr Tilly said the series had a regular audience of three million — reaching the screens for the three evenings each week — and more than 150,000 wrote to the BBC's national service for more information.



David Allen

Each episode of Making the Most of the Micro took 12 hours in the studio and half a day to edit into 20 minutes. Mr Tilly said everything looked as if it was running smoothly and explanations were as clear as the team could make them.

He said: "The reality of working with computer hardware and software is, of course, that things do go wrong — but a good deal can be learned when they do."

"So we are hoping to capture some of this reality by as computing as to do things live."

"It's exciting because it's never been done before."

■ Three more computer series air on the way from the BBC. Six 20-minute programmes are being prepared called the Electronic Oil line, another is called Computers in Control and features the BBC's top, and the third, with the working title Computer Club, will be a magazine for young people.

Write to: Micro Special, P-O Box 7, London W7 6XJ

# Aim straight the paras are coming

If you're going for sale a VIC 20 you will enjoy Parascope, from an Arizona company. For next week's reflexes in fire a gun, mirrored at the bottom of the screen, at parascope's dragging from helicopter.

If you want to see parascope's land successfully, they must away and return in a tank in damage zone. You get points for destroying techniques and parascope's.

Parascope's a parascope, if you land near you and when a tank, attack or if you want a target. The last one is a flying in a tank in a — under tank tank tank tank — heavily crashed.

It has excellent graphics and sound effects and also only moves in a tank, using either a control or by keyboard.

It is available in cartridge form with expanded features. For details write to The Home Computer, Lake Havasu City, Arizona.

Here's a shopping list of books for the ZX81. I've read in the Times 1000 books, an occasional screening overseas orders. Send a check only — an international money order is not — adding four dollars for airmail shipping. The company is APC (Apex Publishing), Post Office Box 1124, Woodbury, Maryland 21797.

At Times 1000-ZX81 Programming Tips and Tricks, (MPS), includes 101 ready-to-use programs as well as handy-doing books and techniques. \$7.95.

101 Times 1000-ZX81 Computer Programs for Home Schooling, (MPS), is a book as a source of practical ready-to-use programs. \$5.95.

Practical Times/ZX81 Computer Programs for Beginners, (MPS), includes 10 programs in tape. \$7.95.

Times/ZX81 Computer Games Programs, (MPS), has 14 all-new games. \$7.95.

Times/ZX81 Computer Programs Writing Workshop, (MPS), includes program writing workshops, graphics guide and instructions in BASIC. \$4.95.

APC also offers books on the Turbo, Sharp, Com, Atari, Times Instruments and Apple computers. Write to them for a list.

Is what a thought to be the first transmission of a message from KAPPS, an AM-FM radio station in Seattle, Washington, recently broadcast computer data and software.

KAPPS hoped that about 25 to 30 people could advantage of the news. The station sent a 25-second English message on tape. And KAPPS found. Lamented had 10 seconds to set up and then the message, at 1000Hz, was sent in three minutes — seven in two, and one in two.

The message was also broadcast verbally and was very readable. Write in if you made it work. To verify responses a keyword was transmitted only in data.

Several local user groups helped to set up the project and the owners of the station are by the name they work other systems they control.

Although sending computer information by radio is not a particularly new idea, doing so in commercial transmission is new.

One international company is asking for permission to use the space between stations' FM stations to send out personal radio covers. The approval has not yet been obtained. Meanwhile, the concept of doing the same thing over a regular channel, requiring no special equipment other than an amateur station, presents many possibilities.

And this is the end of my discussion — see you next week. Best lots.

## COMPUTER PROGRAMS WANTED

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## Store more on tape

The Hobbit is a book, a computer game — and, now, a tape storage device for the BBC micro.

Makers Ram Computer Products describe it as a cheap alternative to a floppy disc drive.

Each cassette, says the company, has a capacity of 995 words and a read/write speed which, at 750 bytes per second, is nearly seven times faster than a standard cassette recorder.

Reliability is said to be more than 100 times greater than most cassette recorders and 10 times better than some floppy disc drives.

Two drives can be connected directly to the input-output port and up to five files may be opened for reading or writing at one time.

All BBC file commands are supported, says RCP, with those additions: "FORMA" "TITLE", "DELETE" "TITLE", "RECOMP" "TITLE", "KILL".

Now, which made a similar product for the Macintosh, says The Hobbit is compatible with all operating systems that all plugs and connectors and comes with operating software on an EPROM to plug into a spare socket and a full manual.

The Hobbit costs £119.25, a second drive is £139 and a lot of six cassettes is priced at £28.15. Postage and packing is £3 per order.

Ram Computer Products, 41a Lark Lane, Liverpool, Merseyside, D15 4LU. 051-4981.

## Look it up . . . quickly

A quick reference car for ZXII users is being prepared by Eikon Electronics.

It has 20 pages in zettex-style and contains basic information for programming both the ZXII and its predecessor, the ZXIII.

Written in American by Paul Nance, of Nance Systems, the credit cost £3.50 each. They are also available for other popular computers, including Apple and Tandy.

Eikon Electronics, 11 Bay View Road, Pinnerwick, Manchester M25 6LZ.



## Next stop, Manchester

Our computer show arrives in Manchester at just 14 days — and that's a chance to see two computers, one for you and one for the school of your choice.

The first Manchester Home Computer Show will also feature a computer advice centre where visitors can try micro and average programs, writing plans, small businesses and education.

Early forms for the free-to-attend computer competition will be sent with advance tickets and with the show guide during the three-day event.

On display will be a wide selection of computers and software for the home user, particularly in the £20 to £400 range.

## Products and prices

Next time, 150 exhibitors will be showing their products at the 4th International Commodore Computer Show.

It will be held at the Conrad International Hotel, Manchester, on June 18 and 19 with a trade-only day on June 9.

Entrance is £1, or £2.50 for families — with discounts for early applications — and Commodore says prices worth more than £2,000 are on offer for visitors.

Commodore Business Machine (CBM) 617 (open frame) 4095, 617 4095.

The show is to be held at the Midland Hotel, near Old Trafford Station, at the junction of Post Street and Lower Mosley Street, on April 11 (11 noon-7pm), April 12 (10am-6pm) and April 13 (10am-6pm).

It is one of a series of country-wide shows being staged by ASP Exhibitions, part of Home Computing Weekly's publishers Angus Specialist Publications.

Advance tickets are £1 from ASP Exhibitions with free entrance for children under eight and pensioners. There is a £5 per person discount for groups of 20 or more.

The series of shows began in London in January and from Manchester visits Brighton in May, Birmingham (June), Nottingham (September), Newcastle (October), Cardiff (December) and London again in January next year.

John Graham, Manchester Home Computer Show, ASP Exhibitions, 141 Clarendon Road, London WC2R 2LS. 01-417 6002.

Our show is being held at Manchester's Midland Hotel.

## Small letters, small people

Young children have difficulty recognising capital letters because they are first taught the alphabet in lower case.

Low-profiled QWERTY keyboard is selling lower case key caps, at 75p per piece, with a glass-free main board. They are designed for the BBC micro, but should fit other computers with typewriter-style keyboards.

They are the work of BBC programs from QWERTY Sender, a "phone" word game to encourage children to sound out words, Wordfield, which attaches pictures to each letter of the alphabet, and High Flyer, a game which teaches homophones — words which sound the same — and contains more than 200 sentences. The first two are £3.95 each, or £11 for both, and High Flyer, which occupies 34K of RAM, is £9.95. All are supplied with a manual.

## Add a pair of zeroes

Have you got a ZXIIIB? Our company says you can add the two zeroes — if you buy an upgrade.

For £42.50, Telford Electronics and Computing will fit a ZXIII onto a new casing which adds 42 moving bits — including an extra shift key for say, BUBBLY — a reset button, switch for reverse video and a power on light. A BASH pack and power supply could also be put inside the case, says TBC.

The price includes the fitting charge and a six-month guarantee. It costs £49 for those who want to fit it themselves, saving a middling sum.

TBC also offers a range of optional extras including a pair of joystick sockets and an output socket to drive a standard computer monitor.

Telford Electronics and Computing, 164 Bradford Street, Blyth, Northampton NN1 6AU.

## Four years ago

Seven, a show program in 1980 monthly magazine, cost £9.75 for the book — the Independent NAMCOM User Club — We are printing at a headline rate! Annual subscriptions are £10. An advertisement for the club however offered a £10 BASH store for £100 plus eight per cent VAT.



**Guaranteed able to consistently beat Sargon® and all other Spectrum chess programs!**

[illegible]

**Spectrum  
Software**

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Year	Population	Area	Population Density
1990	1,000,000	100,000	10
2000	1,500,000	150,000	10
2010	2,000,000	200,000	10

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[illegible]

\*There are no additional fee charges. All transactions except those generated from independent or contract sales.

[illegible][illegible]

1 2 3 4 5 6 7 8 9 10 11

For a copy of the Software or any updates from the Microsoft Windows  
and its associated programs, visit [www.microsoft.com/windows/updates](http://www.microsoft.com/windows/updates)  
and follow the instructions. Or call 1-866-444-2342.

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Author(s)	Year	Country	Sample Size	Study Design	Findings
...	...	...	...	...	...

**Table 1**

Revised Manuscript – 20180901

**What is Caring — Caring Word Roots** **What is Caring — Caring Word Roots**

Category	Sub-category	Value	Unit
Energy	Electricity	100	kWh
	Gas	100	m <sup>3</sup>
Water	Supply	100	m <sup>3</sup>
	Wastewater	100	m <sup>3</sup>
Waste	Landfill	100	m <sup>3</sup>
	Recycling	100	m <sup>3</sup>
Transport	Car	100	km
	Bus	100	km
Travel	Flight	100	km
	Train	100	km

[illegible]

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# CROSSWORD ... PUZZLE



There's a crisp £10 cheque for the first correct entry out of the hat on Friday April 15. That gives you 10 days to complete Geoff Turner's puzzle and get it to us



### Entry coupon

Name

Address

Please write clearly, in capitals, and send your entry on Crossword, Home Computing Weekly, 649 Charing Cross Road, London WC4A 3LB. Closing date is five pm on Friday April 15.

### Across

1. Manoeuvred with an early computer, who has consorted with a certain TV quiz panel
3. A short electronic computer?
7. Valley in the USA
10. Golden adventure for women?
11. This could come between your computer and its printer
15. Clear screen and read the cursor here?
17. Changing companies to 4 down?
18. Happens from a computer's memory?
22. This BASIC message could help you find your monitor on 25 across
24. A new computer easy to find, as apps, but slow in this report
- 25 and 26 across. Go here for your TMS 80?
29. First computer from another planet?
30. He has recently shown us how to make the most of our mice
31. Files are usually full of a
32. Inside a Colour Gate package you should find its counterpart
34. See 16 down
36. Turbo talk!
37. Often seen around the computer?

### Down

1. Elementary language?
2. Reopens your computer to tell you the state of a character?
4. Components from the Charge take-away?
5. Important feature of many computer games
6. Found at the back of a large computer?
8. This must tell you how long a string is
9. Definitely not a p.p.i. transfer
12. Could allow the teacher to communicate with his pupils
13. Make comments about your programs?
14. Don't wait for an input?
- 16 and 34 across. You only need this to find your way around your computer
19. Make plans to put graphics in your program?
20. Was this computer was the M.K. 14
21. Who will look after this computer when you are away on holiday?
24. Did Dr George own one of these computers?
27. Take a look inside a computer ...
28. ... and take a byte from this one?
30. Computer can vibrate to the naked eye?
33. This plug is often responsible for delays in computer production

### The small print

The first correct entry drawn at random on Friday April 15 will be the winner. Incorrectly addressed entries will not be considered. Entries will not be accepted from employees and their families, or

from Specialist Publications and Assistant Publishers & from ... The winner's name and the solution will be published in the Home Computing Weekly. The editor reserves the right not to correspond with the winner.

## We're watching says Currys

Currys, with 214 high street stores, is keeping an eye on the micro market with a new line of computers designed for business.

Already, there are 34 shops called Micro-C, run by a separate arm of the company, and there have been suggestions that computers will be sold in Currys's main stores.

Marketing director Richard Ford said: "As the moment the market is in the hands of Micro-C which sells machines like the VIC-20, Double and Atom."

"We are very naturally considering our position. There's nobody else there - it's just a matter of time."

Currys, 48-50 Oxford Road, Dublin, London W1 3BQ.

## Keep 'em rolling

Join the Dragon trail with your 485 One, says Oquir Software.

New work the company is bringing a cassette called *Passer* (197), costing £6.95 and complete with wagon, rails, wheels, cross and mountains.

Tony Rodd, who wrote the program, said: "I've got quite a lot of personal knowledge about the old Vic and I've not quite a few wheels."

Oquir Software, 34 Seel Road, Broomfield, Stockport, Cheshire SK7 2LS.

## Keeping it in the family

Two little girls called Peggy and Sophie helped their mother and father set a small software firm. It began when Vixi and Geoffrey Sampson bought a 198 Spectrum in summer last year, planning to use it as a teaching aid - only to find few programs for children of their daughters' age group.

Miss Sampson, a 40-year-old Aucklander with a degree in Business Analytics, said: "Sophie was three then and ready for school but they would not accept her, so we bought the Spectrum."

"We could not find any programs or videos on our own. I went to the schools and asked the teachers for advice. Then people

said we should try writing them - so we did."

The first cassette, priced at £1.95 contains *Telling the Time* and *Money*.

The first task the hands of a clock is programmed into for children to type the time in words. *Money* covers a small amount and shows pictures of coins. The child is asked to make up the value using these coins, with sound effects and coloured screen scenes. *Control* results in a long termant reward with a gold-coloured screen.

Geoffrey Sampson, 11, is a reader in Linguistics at Lancaster University. The couple and a London University.

He wrote the first of the first cassette and is now working on a second, an introduction to maths.

Miss Sampson said: "We are going to try and make it relevant, not over the top, because there's a use in the market. We try to find out what kids want, write the programs and try them out. A computer will not replace pen and paper, but it can help."

The children, now aged seven and five, were helped with the cassette design. Miss Sampson said: "I put it all down and said 'I'm not doing this' and I used the best one on the cassette."



Peggy's drawing on the cassette card.

*Passer* Program is based on the Sampsons' Lancaster home - half the house built for a Victorian mill owner. Mrs Sampson said: "It gets noisy in the spring with the birds singing."

Ms Sampson is also involved in teacher projects. He is writing another book, this time on writing systems. And he is writing a *Numberline* with a word processor he wrote for himself.

Peggy Program, Richmond House, Sophie, Camberley, Surrey GU10 3JN.

# Games are killing the micro market

A third of all microcomputers sold in the past decade have been bought in the last three years. This incredible upsurge has been brought about by the widespread view that the micro is nothing but a glorified games console capable of passing arcade quality video games on to home television screens.

Not only is this misconception on the part of the purchaser, but also an unrealistic proposition for the manufacturer - for to make a truly unique quality game would sell at least as many machines as its purchase price.

More people have taken to the game of the computer to achieve to create dazzling reproductions of its arcade counterparts.

Often the manufacturers, especially for software, are slow to adapt to the market for more than one game. Existing software and careful packaging obscures the fact that, in the case of games software, the game you have purchased is not up to its own standards.

For those whose software has been totally discarded, a result of the local paper, a classified ad in a computer magazine or a notice on the shop windows of their dealer.

People should realise that a machine is a means to an end, not an end in itself. You have to take the time and effort to learn how to program in order to improve the benefits (and frustrations) of your own creativity - to develop a single video game or design a program that satisfies you and transfers a good deal of time to it will become obvious that there is no way a program written on a home computer can give the level of quality taken for granted on an arcade machine.

If games are all that interests you, it makes more sense to buy a game machine disk and do nothing but displaying a coloured array of games modules. But not before the prospective micro buyer gets caught up in the maze of the very machines.

Because of this, the market will eventually suffer. People will sell off their machines at their current prices in what has seemed to be a poor investment. As an analogy, the secondhand car market has taken a lot of business away from showroom sales of new models, simply because the numbers, choice and, most importantly, price of secondhand cars make buying a brand new car pointless.

It will be with microcomputers, with an obvious decline in demand and a parallel rise in the numbers of machines being offered for sale through magazines and newspapers. In fact I predict that the near future will see the publication of supplementary magazines devoted to the sale, purchase and exchange of microcomputers in their thousands, if not thousands. Economies of scale will rule within the micro market for those marketers, realising it is a becoming sort of sales to the general public.

This could all come about simply because of the growing emphasis on micro for use in personal terminals. Could it not be that the game software failed to expand the market for microcomputers?

Aide G Roberts

Business programmer, Port Talbot

• What makes you proud or sorry of about the microcomputer hardware or software? We welcome contributions for this column. Send them to: Paul Lloyd, Computer House Computing World, 141 Charing Cross Road, London WC2A 3LS. Please include your occupation and your nearest to computer.

# Manchester Home Computer Show

## MIDLAND HOTEL

### April 21/22/23

Your diary dates are:

Brighton ..... May

Birmingham ..... June

Nottingham .... September

Newcastle ..... October

Cardiff ..... December

Sponsored jointly by:

Personal Computing Today

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Personal Software

At the Home Computer Shows will be a complete cross section of the hardware and software available to the home user. The emphasis is on the lower end of the price bracket with computers from £50-£400.

If you are interested in computers and what they can do for you then come along to our **COMPUTER ADVICE CENTRE**: experts will be on hand to give you impartial advice on equipment available.

Try out the machines in our own demonstration area and see programs running covering educational, games and small business applications.

There is a **COMPETITION** at every show to:

**WIN TWO COMPUTERS.**

Win a computer for yourself as well as one for the school of your choice: free entry form with advance tickets. Also available at the show with the show catalogue.

**ADMISSION £2.00 (CHILDREN UNDER 8 & O.A.P.'s FREE)**

**AND IF YOU'RE A PARTY OF 20 OR MORE, THERE'S A 25% DISCOUNT**

**Thursday 21 April '83 (12am-7pm)**

**Friday 22 April '83 (10am-6pm)**

**Saturday 23 April '83 (10am-6pm)**

The Manchester Home Computer Show  
Midland Hotel, (Opposite Town Hall).

For advance tickets send cheque/postal order to:  
ASP Exhibitors.

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SAVE £1.00  
Name Mr/Ms/Mrs \_\_\_\_\_  
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## A micro in your trolley

Supermarket giant Sainsbury has opened the first of a chain of in-store computer shops.

It is being run in Telford, Shropshire, by Jonothan Services as Jonothan Home Computers and stocks the ZX81, Spectrum, Vic 20, Commodore 64, Atari, BBC micro, Dragon and the NEC PC8801 with a couple of software, peripherals and add-ons.

## Power protection

It and K Electrical has introduced an earth leakage circuit breaker which, it says, is designed for use around the home, particularly for computers.

Called the H94, it is about the size of a standard double socket power point and suitable for wall mounting or portable use. It costs £29.50 and the appliance is to be processed in plug-in into the standard three-pin socket.

**It and K Electrical Products,** Temple Fields, Marlow, Bucks, MK35 9BG.

## I'm not fooling

Software house Clementi Chambers was being accused of playing an April Fool prank last week — because of a prospectus he is selling.

His company, Computer Romatic, says its high resolution text line cassette, at £5.95, for the BBC ZX81 can create a display of 192 by 256.

"It's true," said Mr Chambers. "I'm not making it up but three people rang up to ask if it was a joke. There's nothing like it on the market."

The program was written by a 14-year-old East Anglian schoolboy called Richard Taylor, who gets 20 per cent royalties.

Richard has written another program, due later this autumn Spectrum model and costing £5.95, which adds 28 new screen colours, says Mr Chambers.

Add there is a third coming, a £5.95 ZX81 software called Troops from Manchester.

**Computer Romatic, 140 Winchester Road, London E1 1EJ.**



Z80 X alongside special Spectrum adapter — meant for Sinclair

## Sinclair sounds off

Add sound to your silent Sinclair computer.

Dr-Pak, Soundconcepts has brought out a modified version of its sound generator, called the Z80 X for the ZX81 and the Spectrum.

Inside a black plastic case are two speakers with manual volume control. It plugs into the back of the computer and does not need power supply or batteries.

Dr-Pak also offers a wide range of sound effects — including pianos, bells, organs,

teletypewriters, horns and explosions — to add to programs.

Z80 X has a sound chip with three channels plus sound patch and volume can be controlled by simple BASIC statement on the switch-delay device.

There is a further plug-in adapter, for use with the Spectrum, which contains a crystal and other devices to give, says Dr-Pak, unlimited sound facilities.

Z80 X costs £25.95, special adapter is £32.75 and the Spectrum special adapter only is priced at £8.50. Prices include postage.

**Dr-Pak Soundconcepts, The Maltings, 45A High Street, Ware, Herts SG9 7AG.**

## Fireworks for show

Organisers of a computer show are laying on a bonfire and fireworks display at Birmingham's National Exhibition Centre. Called Reckless 83, the exhibition is being held on November 4, 5 and 6. Clapp and Palsky, 282 Acton Lane, London W4 1DR.

## Send them now

Don't forget — have only until first post on April 4 to enter our great Spectrum/Oric/kwarc competition with £5,000 prizes. (It is currently addressed enquiries requesting coupons: first copies from issues 1, 2 and 3 of Home Computing Weekly will be accepted. Good luck!)

## BBC micro ad complaint

Adverts has been tapped on the shoulder again over its advertising.

This time the Advertising Standards Authority upheld a complaint about an advertisement for the BBC microcomputer.

It showed how the company could be expanded along with peripherals and software applications, says the ASA in its latest report that all these items were available.

An order form gave details of many of them. The ASA says that not only were some not available "but in certain instances they were not yet in production."

The authority upheld the complaint and said it was concerned that the material had been prepared without due regard to its costs of production.

Adverts had said it did not claim all the items were available and that the advertisement was purely informative. It agreed to amend future advertising to make this clear.

# You could be on our pages

We welcome programs and articles from our readers.

Programs should, if possible, be computer printed (use a new ribbon and/or print on cassette, check carefully that they are bug-free, include details of what your program does, how it works, variables you have used and hints on conversion).

ARTICLES on using home computers should be no longer than 2,000 words, don't worry about your writing ability — just try to keep to the style in HCU. Articles must be ready to be published with little or no reader's input. Better use of your editors by giving useful ideas and tips. Please include example programs. We will convert any classified illustrations into finished artwork.

Keep a copy of your submissions and include an SAE if you want them returned. Label everything clearly and give a telephone and home phone number if you can.

Paul Upstart, Home Computing Weekly, 1st Charing Cross Road, London WC2A 0AT.

# One man went to mow — but can you?

Let your computer take you into the garden.  
Allen Webb's program, for the VIC-20 plus 8K extra RAM, makes a change from shoot 'em up games

How does your garden have grass?

This *Quest for the Golden Garden* is more efficient than the one you've given in our program.

Here is a game in which no aliens or monsters appear, no space ships are used and at which you don't have a laser cannon. In fact, all you have to do is cut grass.

Imagine that you are trying to make a living by cutting other people's lawns. You have a petrol mower which works well but has a sticky throttle and won't stop once it's moving.

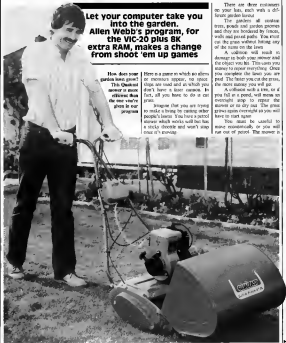
There are three obstacles on your lawn, each with a delicate garden lawn.

The garden all contains trees, ponds and garden gnomes and they are bordered by fences, walls and gravel paths. You must cut the grass without hitting any of the items on the lawn.

A collision will result in damage to both your mower and the object you hit. This costs you money to repair everything. Once you complete the lawn you are paid. The faster you cut the grass, the more money you will go.

A collision with a tree, or if you fall in a pond, will mean an overnight stop to repair the damage or to dry out. The grass grows again overnight so you will have to start again.

You must be careful to mow continuously or you will run out of petrol. The mower is



## VIC-20 PROGRAM

refilled if you do, but it costs you money.

The program needs at least 8K expansion in RAM. Before loading or typing in the program, you must raise the start of BASIC with the following direct command:

**POKE4096:575:6600**

When you run the program, you will be asked for the level of difficulty. 0 is the slowest speed and 9 is the fastest. The program will then draw one of the gardens and position your mower on it. You must then press any key to start. You move the mower with the following keys:

- A — move up
- Z — move down
- Cursor right — move right
- Cursor down — move left

If you hit anything, you will be given a message at the top of the screen; press any key to get going again after a collision.

The program uses a number of features which may be of interest. Lines 479-489 set up a screen of 32 rows of 36 characters. This screen is cleared by the SYS 6000 call. The user defined characters are stored in RAM starting at 1620 and are pointed to by a POKE 56668,200

In order to spend things up, the level is counted on line 1130 by the SYS6000. If all the grass has been cut, then location 1 will contain 0, else it contains 1.

Sound effects have been included to give the program that added undesirable quality.

### How it works:

- Line 60 sets up sound registers and clear keyboard buffer
- Line 100 movement increments
- Line 110 loads machine code
- Line 480-489 load characters
- Line 490-499 save screen status
- Line 493-499 set up and clear screen
- Line 490-499 clear level
- Line 500-509 set key press and change direction and mower character
- Line 1000-1009 check petrol
- Line 1040-1100 check for collision
- Line 1130-1200 cut grass and burn lawn
- Line 1210 message routine
- Line 1230-1330 grass growing routine
- Line 1340-1460 lawn finished, calculate cash, new lawn?
- Line 1470-1520 cut grass around tree
- Line 1530-1670 instructions
- Line 1680-1690 money count
- Line 1700-1840 collision effects

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# Have a drawing, squeaking, playing, speaking micro

You'd be surprised what your micro can do — with a little software help. Our reviewers tell you how they rate the new utility programs

be incorporated in your own programs.

Written in Basic, Auto Graphics allows graphics commands to be designed on the screen by individual pixels. As the design is built up, target screen areas can be defined as single graphics "blocks." Once the design is in your hand, it is saved as a Basic program line.

As the Auto Graphics line numbers start at 9000 you have the option of including the generated strings either as text at the start or as a subsequence at the end of your own program. Instructions are also given on saving the graphics lines on tape and then merging with another program.

But remember that the program uses A8 to store an associated string — don't use the same variable as your program.

An eight-page instruction book, accompanying this tape, and I would strongly advise anyone buying the program to study the instructions carefully.

instructions	90%
ease of use	50%
graphics	10%
value for money	90%

★★★★

## Auto Sonics Video Genie £4.99

Butterfield Software, 14 Western Avenue, Raddolven, Ringley, Yorks.

I don't know quite what to do, when this tape arrived for review, but it turned out to be a really excellent utility for those who write games in BASIC and want to include sound effects.

After adjusting your sound equipment with the aid of a signal output by the program, you are faced with a menu of 36 possible effects, including animal noises, music and space sounds.

Select the sound you want, and a list of parameters appears on the screen. Using these, you can adjust the quality and duration of the sound in various different ways, and keep testing the effect until you are after. Pressing the / key will then produce the BASIC program line which

gives the effect, and this can then be copied for use in a subsequence in a program.

This tape will no doubt go down well with games specialists. I look forward to the appearance of programs realising the performance of Park Edwards or the BBC Radiophonic Workshop.

instructions	90%
ease of use	90%
graphics	50%
value for money	90%

★★★★

## Spectsound Spectrum £5.95

PDC Software, Pandey Rye, Holm Lane, Edensorge, Kent TN38 8JU

Spectsound lets you use the Spectrum's keyboard rather than the Lays on an electronic organ, to play notes and compose simple tunes. Though by no means all of the imagination could the Spectsound be described as a musical instrument, the booklet suggests that it could be used as an elementary music teaching aid.

A keyboard overlay is provided to show you which keys produce which notes, and the instruction book is very easy to follow.

The program loaded fast, and launched straight into a pleasant mode and a display of the musical notes, with notes appearing in the appropriate places. On running GOTO 45 in decimal, I was rewarded with the demonstration tune, Hava-Nagila.

The main program, however, is rather low resolution. Pressing a key produces a note, plus the name of the note displayed on the screen. You do not, unfortunately, see the note's position on the scale.

By adding this to the program, Spectsound's usefulness as a teaching aid would be much greater. Maybe the programmer would like to take this idea up?

instructions	100%
playability	90%
graphics	50%
value for money	70%

★★★★



## Softalk II — Spacegames 48K Spectrum £6.95

This is a good idea and quite successful. The program enables the Spectrum to "speak", enabling a vocabulary of 46 pre-defined words to be stored above language.

The set includes all whole numbers, plus a vocabulary derived from Star Trek, including words like "phaser" and "interfaze" as well as some colours and directions.

Also included is the "s" sound to phrase many words. Clever programmers might also be able to right words by altering the addresses of the stored data, for example to get

"typed" from "s" and "typeda".

The quality of the sound is surprisingly good, though it takes a bit of getting used to. But there is a great deal of background buzz, and amplifying the output sometimes seems to amplify the buzz at the expense of the speech.

It takes two lines of program to produce a word, but long sentences can easily be programmed. However very few long sentences are possible with the vocabulary provided. Applications will be simple single word messages or hints to other programs.

Certainly not as good as good speech chips, but quite a reasonable manipulation of the Spectrum's primitive sound system.

instructions	90%
ease of use	70%
graphics	10%
value for money	80%

★★★★

## Auto Graphics Video Genie £6.95

Butterfield Software, 14 Western Avenue, Raddolven, Ringley, Yorks.

Another program developed by Butterfield, this time as aid to designing graphics to

# FEELING ADVENTUROUS?

## ASP Software Adventure Series 1

**THE WHITE BARROWS** Program approximately 11K.  
Somebody used the name of burial chambers for an Evil Sorcerer whom you need to trap. Trouble is, he's protected by Treas, Dragons, Serpents and the occasional Dragon or two! Your magic staff will block the tunnel to prevent him escaping unless, that is, he submits to you.

A real brain bender, White Barrows requires both brains and brawn from its players. It's no good just hacking your way through the Barrows and hoping to follow the Sorcerer. Eventually you'll meet a Dragon, and they don't back really!

You'll need all your strength and cunning to survive this one for long!  
Tape: **WHITE BARROWS** Only 65.50 all inclusive!

**CONQUERING EVEREST** Program approximately 11K.  
You are in charge of an expedition comprising 33 climbers, 14 Sherpas and 40 Porters. There is food, tents and equipment for all, even the wages you'd need as you reach the summit. One slight problem, it's all at the **BOTTOM** of the mountain and you have to get it all up to the **TOP**!

The rewards of this game are exhilaration, starvation, worms and, worst of all, bad planning! A real, thinking man's adventure, Everest will test your skills of forward planning to the limit.

**CONQUERING EVEREST** Only 65.50 all inclusive!

**\*\* SPECIAL DEAL \*\*** Both programs on one tape for only £11.45 all inclusive!

## ASP Software Adventure Series 2

**CELLS AND SERPENTS** Program approximately 11K.

More monsters than you ever thought could live behind your keyboard! Wander the hills in search of gold and glory (but be very, very careful where you tread! There are things here that will make your wildest nightmares look like Julia Andrews. If only meeting a Mind Flyer, for example! Or how about shaking hands with an Agedemon? (You'll only do that once!) Treasure is here to be found though—the hard way.

See just how good you really are at adventuring with this practically unassailable fantasy. Not for the faint of heart or the slow of woad!

**CELLS AND SERPENTS** Only 65.50 all inclusive!

**STOCKMARKET** Program approximately 11K.

There are other ways of making money than buying Treas on the hoof. Try this one for a change. Contend with a fluctuating economy, tax regulations, bullish opponents, impatient bank managers and cautious takeovers as you struggle to make your first million.

It is decidedly difficult and definitely competitive. A must for all those aspiring financial wizards, both young and old, the game has real family appeal as up to six people can play. It's easy to learn but very, very hard to win!

**STOCKMARKET** Only 65.50 all inclusive!

**\*\* SPECIAL DEAL \*\*** Both programs on one tape for only £11.45 all inclusive!

Our Adventure Series programs are available on tape for the following systems:

Commodore VIC 20/64 available for White Barrows/ Everest; Sharp M2/604 and M2/608; Tandy 105/60 Model 1; BBC Model B or ZX Model A; Atari 400 and 600; Sinclair 48K ZX Spectrum.

Please indicate your selection on the coupon and give the relevant system. Please note that we **CANNOT** supply mixed orders on the combined tapes, A BBC Cells and Serpents with an Atari Stockmarket, for example.

Fill in the coupon, cut it out and send it to:

ASP Software, ASP Ltd, 145 Chiswick Cross Road, London W6NW 0EE

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Stockmarket ..... £P 65.50 each

Combined tape ..... £P £11.45

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Please use **BLOCK CAPITALS** and include your postcode

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POSTCODE

Signature ..... Date .....



## Flight program didn't take off

After reading of Mr Hanning's problems with C-Tron software, I thought I'd let readers know about the difficulties I've had with the same company.

In November last year, I sent off for a Flight Simulator program for the Dragon. About two weeks later (so much for the advertised dispatch within 48 hours) I received a tape in a box and nothing else — no documentation at all.

The program turned out to be written in Basic, and, contrary to what was stated in the advertisement, disks and runway could not be shown on the screen together.

I sent the tape back, and another in the same state as the first arrived about three weeks later. This one would not load — the only time I've ever had any problems with loading.

This tape was returned on January 3 by registered post, along with a request for my money to be refunded. On February 21 I sent a further letter, but have still heard nothing from them. C.P. Davies, Calveys Bay, Chert.

## Winter's tale of woe

My experience with One Products have been similar to your correspondence. My tailed work has followed.

Order 406, One is the first week of November, on a promise of delivery at the first week of December.

End of November — dispatch now second week in December.

Early December — dispatch now be Christmas.

Mid-December — letter confirming dispatch Christmas is early New Year.

December 22 — machine posted!

Christmas/New Year holiday — connection calls to GPO, but no One.

First work in January — apologies for a mix-up between factory and sales — dispatch now by end of January.

February 3 — One arrives, posted on February 3.

Second week in February — I wrote to computer and the North

**Send your letters to Letters, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. There's at least £5-worth of software for the best each week, so don't forget to name your computer. Queries cannot be answered on this page**

Imagery, One User magazine, culture links and explanation of various bugs. No reply to date.

Mid-February — machine terms down and returned to One. Delivery confirmed, but no date for dispatch given. Then delivery delayed.

End of February — delivery confirmed. Dispatch by One.

March 3 — still no One. Write to demand refund.

March 5 — One delivered (pleased March 6).

The above experience just some of the phone calls I have had to make to One — has the company got shares in British Telecom? G.D. Evans, Luton, Beds.

## Calling all Dragon owners

The Scottish Dragon Club has a current membership of 157 from all over the country. As well as publishing a regular club newsletter, we have obtained members discounts from over 40 different soft ware and hardware manufacturers so far.

We charge an £8 membership fee which includes membership and five games tape.

E.J. Anderson, President, The Scottish Dragon Club, Tap Hill, 1 Walker Street, Edinburgh EH2 1TY.

## My computer language barrier

Having finally convinced myself by a Colour Game, what do I find in issue 1 of your magazine? My computer will be out of date as soon as Mr Whistler's of Love Computers, can get his new disks imported from Japan. Well, you pay your money and you take your choice.

But I do feel there is a lot of a

lot going on in the computer world on the subject of language. When I bought my computer, I was told that I used BASIC instructions. Seeing a number of magazines all advertising BASIC programs, I thought I was well away.

Then I found that BASIC does not mean what my dictionary says at times — in fact there are many different BASICs in these micro-computers.

Has anyone thought of writing a BASIC comparison dictionary? Perhaps you could use the idea for a series. As you are a weekly, we wouldn't have long to wait before being able to add to our understanding.

I hope you will be carrying Colour Game programs in future issues.

Peter Holzer, Borel, Camberley.

## More Atari hints, please

Up till two months ago I thought a pool was something like a lapswoman and a byte was with marks on an apple.

Since then I have acquired an Atari 400, and have found what a pool and byte really are. But I have not find many useful hints on using this machine without paying exorbitant prices for 1/6 magazines.

In your first issue, with the article on Atari graphics, was heaven sent. Please keep it up — I am sure all your other Atari-minded readers will agree. Sp. M. Garrett, RAF C14, Blackpool, Lancs.

## Multiplicity of micros

Please can you give our micro club a mention? We told our first

meeting on March 8 and were very pleased with the response — 70 people present. Among the speakers represented were ENIG, Spectrum, TRS-80, Macpac III, Dragon, Pet and BBC, though not everyone who came was a micro owner.

We are the Thurston and Daniel Micro Club, and we will be meeting every Wednesday evening. As the secretary, I will give further details to any readers who are interested.

Prior James Davis, 41 Taylor Street, Thurston East, Near Rushmore, South Yorks YO6 9BP.

What readers to hear about your micro club? Send us the details.

## No guilt about games

I'm not a computer person but I have got a Spectrum. It's on my living room floor and I only use it for playing games.

I don't know how to program and I don't want to know. It is as much as I can do to get by local the games into the Spectrum.

Most of my friends and family are in professional programming and they all play games too. So why should I feel guilty?

Mrs Patrick Smith, 40 London Road, Northern Ireland.

## Tell me the same-old story

I too am having problems with One Products, as is a friend of my son's. Only today I rang the company, so he told the same story I have been hearing for the past six weeks.

My order was first placed in October last year. What strange mistakes in that, not only have One not delivered our goods, but it also cashed our cheque on January 13. This money could have kept our son's in London rather than there!

P. Peters, Hall, Haverhill.

We have received a number of letters complaining about One's delivery delays.



[illegible]

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- Discover Teletype graphics modes
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 Double new and world new type with arches (new)  
 Double new, balance with forward double

\*Change in A/E expenditures, 1995-1996, 1996-1997, 1997-1998, 1998-1999, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025, 2025-2026, 2026-2027, 2027-2028, 2028-2029, 2029-2030, 2030-2031, 2031-2032, 2032-2033, 2033-2034, 2034-2035, 2035-2036, 2036-2037, 2037-2038, 2038-2039, 2039-2040, 2040-2041, 2041-2042, 2042-2043, 2043-2044, 2044-2045, 2045-2046, 2046-2047, 2047-2048, 2048-2049, 2049-2050, 2050-2051, 2051-2052, 2052-2053, 2053-2054, 2054-2055, 2055-2056, 2056-2057, 2057-2058, 2058-2059, 2059-2060, 2060-2061, 2061-2062, 2062-2063, 2063-2064, 2064-2065, 2065-2066, 2066-2067, 2067-2068, 2068-2069, 2069-2070, 2070-2071, 2071-2072, 2072-2073, 2073-2074, 2074-2075, 2075-2076, 2076-2077, 2077-2078, 2078-2079, 2079-2080, 2080-2081, 2081-2082, 2082-2083, 2083-2084, 2084-2085, 2085-2086, 2086-2087, 2087-2088, 2088-2089, 2089-2090, 2090-2091, 2091-2092, 2092-2093, 2093-2094, 2094-2095, 2095-2096, 2096-2097, 2097-2098, 2098-2099, 2099-2100, 2100-2101, 2101-2102, 2102-2103, 2103-2104, 2104-2105, 2105-2106, 2106-2107, 2107-2108, 2108-2109, 2109-2110, 2110-2111, 2111-2112, 2112-2113, 2113-2114, 2114-2115, 2115-2116, 2116-2117, 2117-2118, 2118-2119, 2119-2120, 2120-2121, 2121-2122, 2122-2123, 2123-2124, 2124-2125, 2125-2126, 2126-2127, 2127-2128, 2128-2129, 2129-2130, 2130-2131, 2131-2132, 2132-2133, 2133-2134, 2134-2135, 2135-2136, 2136-2137, 2137-2138, 2138-2139, 2139-2140, 2140-2141, 2141-2142, 2142-2143, 2143-2144, 2144-2145, 2145-2146, 2146-2147, 2147-2148, 2148-2149, 2149-2150, 2150-2151, 2151-2152, 2152-2153, 2153-2154, 2154-2155, 2155-2156, 2156-2157, 2157-2158, 2158-2159, 2159-2160, 2160-2161, 2161-2162, 2162-2163, 2163-2164, 2164-2165, 2165-2166, 2166-2167, 2167-2168, 2168-2169, 2169-2170, 2170-2171, 2171-2172, 2172-2173, 2173-2174, 2174-2175, 2175-2176, 2176-2177, 2177-2178, 2178-2179, 2179-2180, 2180-2181, 2181-2182, 2182-2183, 2183-2184, 2184-2185, 2185-2186, 2186-2187, 2187-2188, 2188-2189, 2189-2190, 2190-2191, 2191-2192, 2192-2193, 2193-2194, 2194-2195, 2195-2196, 2196-2197, 2197-2198, 2198-2199, 2199-2200, 2200-2201, 2201-2202, 2202-2203, 2203-2204, 2204-2205, 2205-2206, 2206-2207, 2207-2208, 2208-2209, 2209-2210, 2210-2211, 2211-2212, 2212-2213, 2213-2214, 2214-2215, 2215-2216, 2216-2217, 2217-2218, 2218-2219, 2219-2220, 2220-2221, 2221-2222, 2222-2223, 2223-2224, 2224-2225, 2225-2226, 2226-2227, 2227-2228, 2228-2229, 2229-2230, 2230-2231, 2231-2232, 2232-2233, 2233-2234, 2234-2235, 2235-2236, 2236-2237, 2237-2238, 2238-2239, 2239-2240, 2240-2241, 2241-2242, 2242-2243, 2243-2244, 2244-2245, 2245-2246, 2246-2247, 2247-2248, 2248-2249, 2249-2250, 2250-2251, 2251-2252, 2252-2253, 2253-2254, 2254-2255, 2255-2256, 2256-2257, 2257-2258, 2258-2259, 2259-2260, 2260-2261, 2261-2262, 2262-2263, 2263-2264, 2264-2265, 2265-2266, 2266-2267, 2267-2268, 2268-2269, 2269-2270, 2270-2271, 2271-2272, 2272-2273, 2273-2274, 2274-2275, 2275-2276, 2276-2277, 2277-2278, 2278-2279, 2279-2280, 2280-2281, 2281-2282, 2282-2283, 2283-2284, 2284-2285, 2285-2286, 2286-2287, 2287-2288, 2288-2289, 2289-2290, 2290-2291, 2291-2292, 2292-2293, 2293-2294, 2294-2295, 2295-2296, 2296-2297, 2297-2298, 2298-2299, 2299-2300, 2300-2301, 2301-2302, 2302-2303, 2303-2304, 2304-2305, 2305-2306, 2306-2307, 2307-2308, 2308-2309, 2309-2310, 2310-2311, 2311-2312, 2312-2313, 2313-2314, 2314-2315, 2315-2316, 2316-2317, 2317-2318, 2318-2319, 2319-2320, 2320-2321, 2321-2322, 2322-2323, 2323-2324, 2324-2325, 2325-2326, 2326-2327, 2327-2328, 2328-2329, 2329-2330, 2330-2331, 2331-2332, 2332-2333, 2333-2334, 2334-2335, 2335-2336, 2336-2337, 2337-2338, 2338-2339, 2339-2340, 2340-2341, 2341-2342, 2342-2343, 2343-2344, 2344-2345, 2345-2346, 2346-2347, 2347-2348, 2348-2349, 2349-2350, 2350-2351, 2351-2352, 2352-2353, 2353-2354, 2354-2355, 2355-2356, 2356-2357, 2357-2358, 2358-2359, 2359-2360, 2360-2361, 2361-2362, 2362-2363, 2363-2364, 2364-2365, 2365-2366, 2366-2

11

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1. *Journal of the American Medical Association*, 1997; 278: 1039-1044.

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**Abstract**



# To boldly go . . . into the unknown with your micro

Want to get away from it all, on a space adventure or a mountaineering expedition? Our reviewers already have. They report back on the latest adventure games



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poor

★★  
average

★★★  
good

★★★★  
very good

★★★★★  
excellent

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MINES OF SATURN  
RETURN TO EARTH

by Mike Gossett, 1984, C&G, £5.95



**Mines of  
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Mikro-Gon, 14 Age: Cassini,  
Blackwell, Berks

Two simple adventure-type programs on one cassette. The domain of both is the same — a series of situations followed by the question, "What will you do now?" —

but the situations are slightly different.

In Mines of Saturn, you have to pick up "De-Luxe Crystals" in order to refuel your spaceship, which has made a forced landing on Saturn.

Return to Earth is the sequel, in which you have to find your way round a desolate earth. So now to try and alert blarney of your predicament.

I was entertained by the display of my spacecraft and Saturn while the program was loading. Sadly, once the game proper had begun, that was the last I saw of them.

The program wouldn't accept a lot of my proposed solutions, but you still start for goldmines, responding with "go-down?" to suggestions I did not understand.

Though I found no bugs or faults, there was some evidence of bad design. For example, at one point I was offered, and accepted, a hint, only to find that the only way to proceed was upward! Well, it did say a little hint.

instructions  
playability  
graphics  
value for money

★★  
70%  
30%  
n/a  
70%



**Labyrinth  
Spectrum  
£5.95**

Axis Software, 71 Brookfield  
Avenue, Loughborough, Leics  
LE11 1LN

Labyrinth challenges you to find your way in three dimensions through a randomly generated maze. Easy to play, the game tests your memory and perception of patterns in detail — all too often you find yourself trying to see

through the entrance or walking straight past the exit!

After loading, you can opt to look at the simple instructions or plunge straight into the maze. There you can go forwards or backwards, move left or right, or, if things get really tough, choose to "go up" or call on the "help" facility. The latter briefly displays a plan of the maze showing your position; otherwise you can only see the walls facing you.

You choose the size of the maze yourself, from a 6 x 4 grid to a 10 x 11 grid, and the computer then chooses a random maze and shows you the plan once before you enter.

On leaving the maze you can choose to see an action replay of your progress (though the labyrinth's time taken to find your way out, and a score based on time and number of moves are shown, and the highest score is recorded).

The maze looked perfectly awesome, and the game proved both enjoyable — and extremely frustrating!

instructions  
playability  
graphics  
value for money

P.J.  
80%  
90%  
70%  
80%



## Everest Ascent 48K Spectrum £6.50

Richard Shepherd Software,  
Fraydon, Maidenhead, Berks SL6  
1JX

Combining aspects of adventure and resource management, this program requires the player to control an Sherpa with varying cost/performance ratios, as well as equipment, and cash flowing in at an unpredictable rate.

The concept is good, but more attention might have been paid to the player's convenience. It was pleasing to be offered a menu of options, only to find that the option I chose was invalid in the current circumstances. For example, if there are stars in the sky, reducing night time, the only valid option is to camp.

Limited availability of key-

board items, such as the increasing cash in hand, may deliberate players, but it results in the need to make expensive sales. You can get as far as the information by asking for a "Position" report (which costs "status"), but it is not available while subsequent changes are being made.

No tension bugs were found, but the appearance of equipment in the list of Sherpas, which may have been due to user error, but the program is not crash-prone. A "quit" option would have been welcome when disaster was inevitable.

Nevertheless, an interesting, if frustrating game. With precise data advantages can be maintained and reasonable progress can be made.

instructions	80%
playability	60%
graphics	50%
value for money	60%

B.T.



## Pimania Dragon £10

Ashtoria, 40a Osborne Road,  
Petersham, PO9 3LA

Your quest in this adventure game is to hunt through caves and open for the Golden Sandals of P. You watch out for the P. Man — he may not be all he seems!

A new twist in this game is that the object of your quest actually ends if you can work out the overall meaning of the game, you could win the real Sandals, made of gold and diamonds and valued at £1,000.

And as well as the program, the Pimania cassette also contains the Pimania theme tune, sung by the shrewdly familiar Chaz Sirens and the P. Man.

These little aside, not use of colour graphics and music is the first thing you notice about Pimania. The art is also neatly presented, within the constraints of the Dragon's display.

But though the animation and "full musical score" are quite fun for a while, they wear largely to pull because of the misapplication of the game itself.

Compared with other adventure games, Pimania has very few (about 30) different places to explore. I found the P. Man's requests (obviously accompanied by an irritating bit of music) about. And the program can only undertake the simplest of instructions.

However, the program loaded fast, and the program running instructions are supplied in situations as how to play or another matter — here you are left in the dark.

Now gamblers — share about the game.

instructions	60%
playability	60%
graphics	60%
value for money	60%

G.M.P.



## BLACK CRYSTAL



## Black Crystal 16K ZX81 £7.50

Curlew Software, 4 Newton Road,  
Bough, Berks SL2 8NT

Black Crystal is the most ambitious adventure game I've seen for ZX81, with elements of Lord of the Rings grafted on to the adventure format.

You take on the role of war-

rior, off to war, with corresponding values for physical and spiritual strength, before setting off into the valley of death. You are to overcome all seven rings of light and eventually, by placing them in exact locations around the black crystal itself, to rid the valley of evil.

The program is large and is divided into six segments provided by a short booklet. Unless you are clearing a new game, you enter each segment by specifying a map reference determined in the segment previously played, the order is not fixed in advance.

Myself, I'm not for the quest yet, it takes some time to master the use of key controlling movement and weapons, and to discover the right tactics. For various reasons still, Black Crystal has impressed me by its sheer quantity and generally high quality of presentation. I'm glad I've become an addict.

C.C.

instructions	80%
playability	80%
graphics	60%
value for money	90%



## THE TRADER



2001 THE GREAT  
TRADING GAME  
ON THE TRADER

## PIXEL

## The Trader Trilogy 16K ZX81 £9.95

Quipholes, 31 Northern Rd,  
Southampton SO2 6PS

In this game adventure game, you are an entrepreneur visiting the planets of the Mordian system. The aim is to return safely to your starting point while maximising your profits.

The main program is preceded by a short memory test, which also sets up a block of control data. Thereafter, the program is given to load each part of the trilogy.

The loading procedure are described in an accompanying booklet. This also contains, besides a trading certificate, an account of the planetary system, its several various types of inhabitants, the commodities they deal in, recommended support equipment, and changes to guard against.

The program itself offers an enjoyable mixture of text and graphics, and contains several different sorts of games that could be marketed separately.

Actually, Trader is just a thick computer, but it's cleverly devised, nicely presented, and if you're trading adventures, well worth considering.

C.C.

instructions	90%
playability	85%
graphics	60%
value for money	75%



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# Watch out . . . the Pucmen are after you

Pucmen is based on the arcade favourite but written entirely in BASIC.

The game demonstrates what can be achieved in BBC BASIC, just using integer variables, and a compact algorithm. What makes the program even more interesting is that it has been written with a structured approach. That is, it is readable, legible and doesn't include a single dreaded GOTO or GOSUB.

It's only disadvantage is that it requires a model B computer, or a model A with IGB of RAM, to run (it runs mode 2).

You start with three lives. A life is lost if you are eaten by one of the three Pucmen com-

**Arcade action from Jeremy Ruston in a well-structured program which shows the versatility of BBC BASIC . . . and offers hours of fun**

ing around the maze, heading in on you. A display is kept up on the right hand side of the display of the number of lives you have left.

There are four special dots in the corners of the maze, call-

ed "power pills". Eating one of these pills instead of a dot endows you with enough power to alter the course of the game for a limited period, so that roles are reversed, and you must start to eat the pucmen.

If you manage to eat one of the men while in this condition, you are given a bonus life. To inform you of this situation is the game a number of special effects start.

The first of these is a continuous high tone which lasts the duration of the power pill's influence. Secondly, the pucmen change colour to a pulsing black/white combination. Thirdly, your speed around the maze, relative to that of the pucmen, increases.

Your gamster is controlled by using these keys:

Up — (up)  
Down — (down)  
Left — Z  
Right — X

```

100 ATN Z00
110 LDM0=100
120 OZ=0
130 REPEAT
140 W000=0
150 REM *****
160 K000=0
170 PROCmove_men
180 PROCmove_pucb
190 COL000=0
200 PRINT TAB(4,1)*M00;" "
210 UNTIL L0=0 OR M0=0
220 TIME=0
230 REPEAT UNTIL TIME=100
240 W000=0
250 IF L0=0 THEN PROClose
260 IF M0=0 THEN PROCwin
270 IF M0<L000 THEN L000=M0
280 MFX=10.1
290 UNTIL GET<110
300 MFX=12
310 MFX=0
320 END
330 REM *****
340 DEF PROCscreen
350 LOCAL AS,TS,CS,AS,AS,AS
360 VDU 3300000000000000
370 CLS
380 RESTORE
390 COL000=0
400 OZ=0
410 PRINT "Low score:"L000;"Score:"
420 DATA FF,FF,FF,FF,FF,FF,FF,FF,FF,FF
430 DATA 00,00,00,00,00,00,00,00,00
440 DATA 00,00,FF,FF,FF,FF,FF,FF,00
450 DATA 00,00,FF,FF,FF,FF,FF,FF,00
460 DATA 00,00,00,00,00,00,00,00,00
470 DATA 00,00,00,00,00,00,00,00,00
480 DATA 00,00,00,00,00,00,00,00,00
490 DATA 00,00,00,00,00,00,00,00,00
500 DATA 00,00,00,00,00,00,00,00,00
510 FOR TS=220 TO 230
520 VDU 33,TS
530 FOR CS=0 TO 7
```

```

540 READ AS
550 VDU 3300000000000000
560 NEXT CS,TS
570 DATA "0000000000000000"
580 DATA "00.....0.....00"
590 DATA "0.0.000.0.000.0.0"
600 DATA "0.0.000.0.000.0.0"
610 DATA "0.....0.....0"
620 DATA "0.0.0.00000.0.0.0"
630 DATA "0.....0.....0.0"
640 DATA "000.000.0.000.000"
650 DATA "0.....0.....0"
660 DATA "000.0.00000.0.000"
670 DATA "0.....0.....0"
680 DATA "000.0.00000.0.000"
690 DATA "0.....0.....0"
700 DATA "000.0.00000.0.000"
710 DATA "0.....0.....0"
720 DATA "0.0.000.0.000.0.0"
730 DATA "0.....0.....0"
740 DATA "000.0.00000.0.000"
750 DATA "0.....0.....0"
760 DATA "0.00000.0.00000.0"
770 DATA "00.....00000"
780 DATA "0000000000000000000"
790 FOR TS=0 TO 22
800 READ AS
810 FOR CS=0 TO 17
820 IF AS=" " THEN VDU 33
830 IF AS="." THEN VDU 17,1,020
840 IF AS="0" THEN VDU 17,2,020
850 IF AS="F" THEN VDU 17,3,020
860 IF AS="F" THEN VDU 17,3,020
870 NEXT CS
880 PRINT
890 NEXT TS
900 MFX=10.1
910 MFX=11.1
920 MFX=1.1
930 MFX=0.5
940 MFX=10.0
950 MFX=0 "MFX 10:MMFX 1:M"
960 COL000=0
970 MFX=10.1
980 L0=0
```

### BBC PROGRAM

[illegible]



# SBC PROGRAM

```

2230 IF Q2=2 THEN J2=J2+1:GOTO2200
2240 IF Q2=4 THEN J2=J2+1:GOTO2200
2250 IF Q2=6 THEN J2=J2+1:GOTO2200
2260 REPEAT
2270 P2=Q2 AND 127:R2=Q2/128
2280 UNTIL P2 = 0
2290 IF P2=1 THEN I2=I2+1:GOTO2200
2300 IF P2=2 THEN J2=J2+1:GOTO2200
2310 IF P2=4 THEN J2=J2+1:GOTO2200
2320 IF P2=6 THEN I2=I2+1:GOTO2200
2330 STOP
2340 REM *****
2350 DEF PROClose
2360 PRINT "CHN4(121):CHN4(121):TAB(121)
"G A E O V E S"
2370 PRINT "CHN4(122):CHN4(122):TAB(121)
"G A E O V E S"
2380 PRINT "CHN4(122):"You have lost a
th a score of "I2S
2390 PRINT "CHN4(123):"Press 'return'
to Restart..."
2400 ENDPROC
2410 REM *****
2420 DEF PROCgaa
2430 PRINT "CHN4(121):CHN4(121):TAB(121)
"G A E O V E S"
2440 PRINT "CHN4(122):CHN4(122):TAB(121)
"G A E O V E S"
2450 PRINT "CHN4(123):"You win !!!"
2460 PRINT "CHN4(123):"Press 'return'
to Restart..."
2470 ENDPROC
2480 REM *****

```

```

2490 REM *****
2500 DEF PROCht
2510 V2=I2/10:L2=Q2+5/32
2520 L2=L2-1
2530 X2=0
2540 Y2=10
2550 K2715=32
2560 SOUND 2,-15,2,74
2570 Q2=TRUE
2580 ENDPROC
2590 REM *****
2600 DEF PROCchange
2610 SOUND 2,-15,275,18
2620 Q2=TRUE
2630 Q2=0
2640 ENDPROC
2650 REM *****
2660 DEF PROCgain
2670 L2=L2+1
2680 IF L2=16 THEN V2=I2/10:L2=10:L2=2+
0/271
2690 K2715=32
2700 X2=0
2710 Y2=10
2720 SOUND 2,-15,10,74
2730 Q2=TRUE
2740 ENDPROC
2750 REM *****
2760 DEF PROCbest_score
2770 IF K2 THEN PROCgain ELSE PROCht
2780 ENDPROC
2790 REM *****

```

**B**  
**B**  
**G**

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# Where the action is for your ZX micro

Our panel has tested out the new games for the ZX81 and Spectrum, and reports back with star ratings

## NIGHT GUNNER



### Night Gunner 16K ZX81 £4.95

Digital Integration, 12 Ash Church Road, Ash, Aldershot, Hants GU12 6LX

"You write your gunner in the suit of a bomber aircraft under attack by enemy fighters. Survival depends on your skill to defend your plane at the enemy waves above the night sky."

So begins the dark accompa-

nying the game, just as you're meeting a storm. The tank, plane. The plane itself is something of a disappointment, although its repeated failure to load did not seem to bother less a nucleus of aggression.

Around the seven hours of a midnight, enemy planes busily descend at punctuation marks jump and jerk. You aim your gun with the arrow keys, and fire with letter Q.

A score is kept, calculated as how long you take to shoot the hidden darts, and if they get you, HIT is blatted across the screen. That means one less of them into the game.

If you're a good shot to win the cannon kept in control, they can be used without concentration and discomfort. A program is designed for a computer, but a game is a thing for a human to play. The manual software reflects the the better for us humans.

instructions	90%
playability	90%
graphics	75%
value for money	85%



T.J.B.

## Space Intruders Spectrum £4.95

Quadriv, Palmerston Park House, 13 Palmerston Rd, Southampton

Superbly packaged, Quadriv's version of the standard Space Invaders format comes with a helpful keyboard overlay, a hold facility (useful for stiff fingers) and a high score table. The solid machine-code program even features load while I was writing it.

A good display, with finely detailed invader graphics, though I didn't like the pink laser. The laser beam responds quickly and moves smoothly, with the intruders

reaching an impressive speed in the midgame. High quality sound effects add movement.

Occasionally a silent blue ship flies across the screen. This is fitted in the almost mode in carrying enemy points, but on distraction none are displayed — a real mystery. And invaders sometimes die, leaving points, before a shot is fired. But there are no other screen bugs.

Fast to play, and great device, it's equipped in five more than one screen. A good implementation of the arcade game, it's a little irregular.

instructions	90%
playability	75%
graphics	85%
value for money	80%



## Triad 48K Spectrum £9.80

Amte Software, Freepost, Cambridge CB1 7HX

Triad is a collection of three games — a variant of Pac-Man, a game called Star Attack and a maze game called Treasure Hunt — in one machine-code program.

The first of these is a reasonable copy of the original arcade game. It offers 14 different mazes and two different speeds of play, also has the help needed enough to make the game worth trouble. The ghosts come straight at you with some of the dawning when associated with spots of the sort.

Star Attack is a fairly standard game in which you drop digits (changes in 10 numbers), which are firing back at you. Even at the highest level of play a novice can still.

Treasure Hunt, on the other hand, is a fairly original game of the maze variety, in which you are guided following treasure instead of chasing them. There are many



levels of play reaching combinations of different mazes, mazes, mazes, walls and levels on the length of time for which each object appears.

Not a bad little package, though a shade overpriced. Reasonable graphics and sound, and adequate documentation.

instructions	70%
playability	90%
graphics	85%
value for money	55%



L.O.

## Devilbirds/ Digger Man Spectrum £4.95

Macrosa, 34 Spens Close, Exeter, South, West Midlands B90 9ES

A very pleasing two-game package. In Digger Man your task is to dig a tunnel while being pursued by Devil Dan. You can then shoot at digging back to the surface, where Dan is powerless to follow.

You choose your own control keys, which I thought was a very good idea.

The game, which leads in two sections, is a good way-paced introduction to electronic gaming and particularly appealing to my

eight-year-old son.

Devilbirds is ideal for the "Maze" among you. From the floor of a dark cave you fire away at a winged creature who glides slowly close above you occasionally withdrawing its own deadly laser in its direction.

Another target for your own weaponry is the too-fast creature hanging from the ceiling roof, which turns out to be embryonic Devilbirds.

You score progressively more points for hits in your advance systematically through the skill levels.

instructions	70%
playability	70%
graphics	75%
value for money	70%



D.J.

## **Crevasse/ Hotfoot Spectrum £4.95**

Micrograph, 71 Rosebery Road,  
London N19

A two-game package, but one game is better than the other.

In *Crevasse*, you are exploring the Polar ice-cap, and are in need of supplies kept ahead your expedition's dog.

To get them, you have to enter and re-enter a terrain made treacherous by glaciers opening across your path — and then closing as quickly as they appeared.

You travel in an ice bugged, represented by a cross which you guide across the screen using the cursor control keys.

Points are awarded for successful journeys, with a bonus for quick crossings. You have ten ice buggies to lose, and there is a high score recording facility.

A fairly lightweight game — I doubt its ability to sustain long-term interest. Unimproving graphics, though I quite liked the way the computer firms their jagged way across the screen. *Hotfoot* is a different matter both in quality and content. You take the role of a hungry rabbit trying to out-thieve. Your task is to get to a supply of carrots (represented by numbers) in the surrounding fields, then scramble for it at safety.

But the open fields are dangerous to wander for Bugs Bunny. If you say out too long, then represented by a moving graphics scale and a moving pulsing score will eat you.

To further complicate matters, the fields keep changing colour. You can only travel on the new field if it is the same colour as the one you are already on. And you have to move faster and faster as the game goes on.

It is very much complicated, but a fairly interesting game, and gives you fairly a lot of fun.

Attractive graphics, with a particularly handsome table in the new field. I found the moving colour combinations of the fields rather hard on the eyes after a time, but the game works just as well in black and white.

**R.J.**  
instructions 75%  
playability 60%  
graphics 60%  
value for money 70%



## **Meteoroids Spectrum £4.95**

Softlink, 124 Grosvenor Road,  
London SW24

When a game is advertised as offering Arcade Action, comparisons are bound to be made with the actually version, and the home computer version inevitably comes off worse.

Having said that, the action of this machine-code game is very smooth. With a total of eight commands at your disposal, the game itself is very playable, once you have got the hang of the controls.

I enjoyed the graphics display while the program was loading, though in contrast with it, the program itself seemed a bit flat. The graphics looked considerably like a fly, and using my *Crevasse* command — *hypergame* — looked about like one. No high score option.

## **ArCADE ACTION ZX81 £4.95**

Microimage, Quater, 110-116  
Lavender Hill, London SW11 1LE

Contrary to the label on the tape, these games are loaded and run in an unexpanded ZX81 — you don't need the 16K RAM. All examples of good, fun, machine code programming that fit loaded first time and the instructions are simple.

In *Overstake*, you are driving a car. You have to increase speed and manoeuvre as well as of the traffic, and the faster you go, the more you score — unless you crash! An addictive game.

*Missile Man* is the less sophisticated. I have seen of *Invaders* on a ZX machine. Four rows of alien plus one moving, built around your battery, and the explosion when you hit or miss are impressive. The game plays well on a good tape.

I am surprised that *Starfighter* fits the tape. You can fly in and out of hyperspace, with stars rushing towards you, and in normal space a landscape scrolls towards you with missiles firing from it, as well. You destroy them by positioning your target over them, when they explode. It's difficult to get a good score, but fun trying.



Items included:

instructions 90%  
playability 85%  
graphics 90%

value for money



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possible to master, and considerably more off the side of the screen. *Round Race* is marginally more as you are at least shown a warning when indicating which direction to go in.

*Cartoon Man* is rather pointless, a steady stream of moving a figure, slowly advanced, I will attempt, across the screen at different speeds.

*Tagger* was the water figure, this time trying to catch four moving objects. If one hits the floor you lose a life. I never got beyond.

*Minor* didn't display a map of the world which clearly rotates left or right. The object is to avoid a series of stars descending from the top of the screen by moving the world so that the meteors land on the sea. The display is so close the top of the screen that you cannot see the meteors in time. That was by far the best game.

**R.C.**

instructions 80%

playability 10%

graphics 75%

value for money 15%



value for money



value for money



value for money



value for money



value for money



value for money



value for money



value for money



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value for money



value for money



value for money



value for money



value for money

Game what *Greedy Gobbler* resembles? You have four ghosts chasing you as you eat the food capsules, and the power pills turn the ghosts grey long enough for you to eat them. A clever implementation.

Don't be misled — the last game, *Evans Thermostat*, seems so reminiscent to the first *Vigilante* in an alien spacecraft cobbling the world which you attempt to reconstruct. It's only a matter of time.

**R.C.**

instructions 90%

playability 90%

graphics 90%

value for money 90%



value for money



value for money



value for money



value for money



value for money



value for money



value for money



value for money

## **Superball Spectrum £4.95**

Ans, 71 Brookfield Avenue,  
Longhorough, Leam

If you are a tennis addict, this is the game for you. If you aren't, it's a waste of the game, the idea is to knock a ball out of a wall by hitting a ball with a bat.

In this version, you choose from three games: practice, programme and acceleration. One or two people can play, and there is a choice of ball speeds.

You can even have three balls in the court at the same time — too much for me to cope with, but experienced players will no doubt be able to cope.

*Superball* loaded first time, and the instructions were easy to follow. I didn't encounter any bugs, and found the game very enjoyable — at very slow speeds I would like to see *Superball* included on a compilation tape, along with other similar games.

**R.J.**  
instructions 100%  
playability 90%  
graphics 90%

value for money



value for money

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# JOYSTICKS



## ZX Spectrum / ZX81

FOR ONE JOYSTICK AND  
INTERFACE MODULE

BUILT, TESTED & READY FOR USE

- NO SOLDERING, interface module plugs into rear connector between Z80 and Main Pack. Pinless etc.
- NO SPECIAL PROGRAMMING, 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1042-1043-1044-1045-1046-1047-1048-1049-1050-1051-1052-1053-1054-1055-1056-1057-1058-1059-1060-1061-1062-1063-1064-1065-1066-1067-1068-1069-1070-1071-1072-1073-1074-1075-1076-1077-1078-1079-1080-1081-1082-1083-1084-1085-1086-1087-1088-1089-1090-1091-1092-1093-1094-1095-1096-1097-1098-1099-1100-1101-1102-1103-1104-1105-1106-1107-1108-1109-1110-1111-1112-1113-1114-1115-1116-1117-1118-1119-1120-1121-1122-1123-1124-1125-1126-1127-1128-1129-1130-1131-1132-1133-1134-1135-1136-1137-1138-1139-1140-1141-1142-1143-1144-1145-1146-1147-1148-1149-1150-1151-1152-1153-1154-1155-1156-1157-1158-1159-1160-1161-1162-1163-1164-1165-1166-1167-1168-1169-1170-1171-1172-1173-1174-1175-1176-1177-1178-1179-1180-1181-1182-1183-1184-1185-1186-1187-1188-1189-1190-1191-1192-1193-1194-1195-1196-1197-1198-1199-1200-1201-1202-1203-1204-1205-1206-1207-1208-1209-1210-1211-1212-1213-1214-1215-1216-1217-1218-1219-1220-1221-12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NEW! ZX SPECTRUM TAPE NOW READY!  
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APPLE, PET AND SHARP!

SOFTWARE FROM  
COMPUTING  
TODAY

# THE VALLEY



What are you . . .  
**Barbarian or Wizard?**

Choose your character type carefully. . . Barbarians recover quickly but their magic doesn't come easily. A Wizard? Slow on the draw and slow to mature . . . but live long enough and grow wise enough and your lightning bolts are almost unstoppable . . .

The Valley is a real-time game of adventure and survival. You may choose one of five character types to be your personal 'extension of self' to battle and pit wits against a number of monsters. Find treasure, fight a Thunder-Lizard in the arid deserts of the Valley, conquer a Kraken in the lakes surrounding the dead Temples of Y'Nagoth or counter a Wraith in the Black Tower. In fact live out the fantasies you've only dared dream about. BUT BEWARE . . . more die than live to tell the tale!

You've read the program (Computing Today — April '82) . . . Now buy the tape. Tape versions (£11.45 each inc. P&P and VAT) available for: ZX Spectrum (48K), Atan 400 and 800 (32K), Tandy TRS-80 Model 1 Level 2, BBC Model A and B, Sharp MZ-80A, Sharp MZ-80K (18K), VIC-20 (with 16K RAM pack) and PET (New ROM, 16K RAM minimum). Disc version (£13.95 each inc. P&P and VAT) available for: Apple II (DOS 3.3), Sharp MZ-80A, Sharp MZ80K and PET 8032 (8050 drives).

A complete reprint of the Valley article is also available for those wishing to do their own conversions for £1.95.

Fill in the coupon and return it to CT Software, ASP Ltd., 145 Charing Cross Road, London WC2H 0BJ and become one of the many to play . . . The Valley . . .

Please send me the following version(s) of The Valley program:

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## ASP SOFTWARE

# Lowdown on the latest look-alike games



## Backgammon 48K Spectrum £3.95

CP Software, 17 Orchard Lane, Farnwood, Great Missenden, Bucks

Backgammon has been around for quite a time. Its package reaches back to the time of the space Egyptians, with various links to games played around 3000 BC.

A computerised version of Backgammon has been the goal of many a programmer, and the version for the Spectrum follows the classical (traditional, not Egyptian) layout. It allows player games just you versus the computer.

The tape loaded version contains a summary of the International Backgammon Association Rules together with a brief but helpful introduction to the game for beginners. The screen display is clear and easily understood in colour. In black and white, though, the black piece merges with the background.

Once you understand what the game is about it is a simple play — but not so easy to win!

Technically, the computer plays a reasonable game. Its play is straightforward and predictable, without any great finesse, but unlike a human player it does not make silly mistakes. It is also fast, taking only about four seconds to decide what to do and then do it.

Do not try to match its speed of play — take your time and plan your moves carefully. Like many of the chess games Backgammon

**With software simulations of real-life games, you can play golf or go to the races without ever leaving your living-room. But some simulations are better than others: here are our reviewers' ratings of the new releases**

a quite effective, as well as played plenty of time to get your own back on the computer!

P.J.

instructions	50%
playability	50%
graphics	75%
value for money	50%



## Golf Dragon £4.95

Apex Trading, 113 Chiswick Road, South, Brighton BN2 4BN

One to four people can play the game, which simulates a nine-hole course by displaying a 4 x 4 hole at a time, in a world view.

Mode 1 simulation graphics is used to give a clear and colourful picture. Players with bad eyesight may have problems seeing the ball, though, since it only consists of a single dot!

When the ball is within putting distance of each hole, the normal view is replaced by close-up of the green. To aim at the hole, you specify the club number you want to use, a strength rating and the direction of the shot.

The need to specify a direction was, I thought, the game's weakest point. You have to provide an angle between 0 and 359 degrees, and this could be a problem to those who have difficulty with maths. But the program's Help facility will point to the rescue.

The program loaded easily and, though few written instructions are supplied, plenty of guidance is displayed by the program itself.

All in all, Golf is great fun. Though the screen says the game involves games, a slight random factor means that you can never master it completely.

G.M.P.

instructions	50%
playability	70%
graphics	75%
value for money	55%



## Handicap Golf Dragon £5

Compuarts, Brixton, 140 Wincobell Road, London SE1

Written in Basic, this is a reasonable golf simulation, and once I got used to its little variations I found it enjoyable to play.

I had trouble with loading at first, but once the volume had been set correctly the program loaded in about 30 seconds. Clear instructions included with the cassette make up for lack of instructions or rules in the program itself.

Each hole in the course is displayed separately, using low resolution graphics to show the barriers with randomly placed trees and other obstacles. The programmer has gone to trouble, so to speak, on the lakes, which appear on every fairway, and it is sometimes difficult to see the fairway for the trees.

Either one or two people can take part, but if one is playing, handicaps for both must be entered. To play each shot you have to enter direction (by using a clockwise format from across 12), and then strength (0-99).

Great care must be taken to enter these numbers correctly — one false move and the screen scrolls, and the whole program has to be re-run.

instructions	75%
playability	50%
graphics	20%
value for money	50%



## Spectrum Golf Spectrum £3.95

B.S. Mouldy, 4 Cowhouse, Chiswick, Chiswick (UB9 4BT)

There are a number of golf programs on the market, and this is as good as any. The supplied tape has a 10K version on one side and 48K on the other. Both loaded fine.

The only difference between them seems to be that instructions are added for the 48K version, but a printed version is included anyway. Instructions are simple and straightforward.

The program is quite well designed, most likely from being copied. You can select the number of holes, which is useful for practice but I don't know of any real courses with 10,000 holes!

I think play might become a little boring after a while, as you can only choose the direction and the strength of each shot (direction of club, for example), and the computer plays you out of the numbers.

Display is clear, each hole being set out quite quickly, and col-



## SOFTWARE REVIEWS

our chosen make play on a Mark and where TV perfectly possible.

Spectrum Golf is quite attractive and fun to play, good value if you've never played the game before, but offering nothing special. Since it's written in BASIC, though, it should be easy to improve.

N/A

instructions	90%
playability	75%
graphics	60%
value for money	70%



### Derby Day 48K Spectrum £5.95

Computer Rentals, 140  
Whitshapel Road, London E1

It's Saturday at the races! Place your bets with Horace Cleve the bookie and the race begins. This race simulation game from Computer Rentals should prove a cheap and harmless way to quell the family's gambling instincts.

Up to five players can bet at once, and there are seven races



to a meeting. Three levels of play are offered, from "Fun" to "dead serious punter" — the highest level lets you enter horses' names and odds of your own choice.

At the start of the game, you also choose whether to bet for pounds or pence — if you choose pence, one of the players becomes Horace Cleve's partner and runs their own book.

For the very stiff, a machine code routine scrolls the screen from

left to right as the horse race along the track. As they near the finish, the screen changes to show winners. If the occasion arises, a photo finish result is given.

If you win your bet, your pool is increased according to the odds on the winning horse, and if your horse comes second, you get one quarter of the odds.

instructions	100%
playability	90%
graphics	85%
value for money	75%



### Jackpot 48K Spectrum £4.95

Computer Rentals, 140  
Whitshapel Road, London E1

Yet another of those "one-armed bandit" simulations where the only money you stand to lose is what you paid for the program in the first place.

Computer Rentals's version provides all the facilities of a large casino machine, such as Playful,

Golden and Wild, depending on the contents of a five-line bet. You start off with a modest 200 units (0, 50 or whatever, the program doesn't say) to bet with. Each spin costs 10 units.

The graphics are very good and reasonably fast, although the program is written entirely in BASIC. As well as the three reels, all the payout possibilities are displayed. When money is put in the machine a little token with "1" on it rolls along the bottom of the screen into the money slot.

If a winning combination occurs, three little tokens also cascade into a little box at the bottom of the screen. Should you be lucky enough to win the jackpot you can sit back for a bit, since the conservative payout sequence takes about 30 seconds.

Jackpot is well documented with on-screen instructions. The sparse thinking of buying it should be warned of its addictions.

instructions	100%
playability	95%
graphics	85%
value for money	80%



## ZX81 | SPECTRUM | DRAGON | TANDY | BBC

16K

16/48

32

LEVEL 2

A/B

### AWARI

### ADVENTURE

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- ★ Select the "Goon-herd" level of play and it's an addition game for children (8+) that exercises their minds — not their little fingers.
- ★ Select the "Wink-doctor" level and it's a threat to your sanity. We haven't beaten it and we won't!

- ★ Over 260 places to explore in this machine-code game using advanced data compression techniques.
- ★ No random elements — you will need skill, cunning and a sense of humour as you exploit rivers, farms and roads.
- ★ Evade ruthless pursuers and overcome a host of obstacles.
- ★ Multiple word commands and single letter abbreviations!

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# Learning how to make faces

**Remember how long it took you to learn the keyboard? David Gray's TI 99/4A program teaches youngsters where the keys are and rewards correct responses**

Faces is a very simple game to acquaint young children with the use of the keyboard.

The program simply displays large versions of the letters A to Z and the child must press the key for the displayed letter. Pressing the wrong key results in a beep, pressing the right key is rewarded by a face at the top of the screen.

When all the letters have been dealt with, pressing the space bar restarts the entire game to be repeated.

## How it works

To display a face or a large version of a letter the program uses four ordinary TI 99/4A characters arranged as shown in Figure 1. The patterns needed for these sets of four characters are supplied in data statements (Lines 700 to 1000).

Line-by-line details of how the program works:

140-150 clear the screen and set the colours to be used in the program. Line 170 sets the colours of the letters and line 180 sets the colours of the faces.

190-230 read in the four patterns which define a face and assign them to the characters 120 to 123.

250 sets for variable LETTER to 1 to indicate the first letter (A).

280-330 make up the main loop of the program. The loop works by having two nested FOR statements which increment all the positions at which a face may be placed.

We terminate this loop when there are no more letters, or we do not want wait there are no more positions for faces. Instead we jump via line 330 when we have no more letters. 280-330 read in the four patterns which define the new letter and assign the patterns to characters 120-123.

350-370 display a large version of the next letter in the centre of the screen.

380-440 wait for the user to type in the correct letter, either in upper (line 400) or lower (line 420) case. Any invalid input results in a beep.

450-480, once valid input has been received, display a face at the current (X,Y) position.

500-550 increments LETTER. If all the letters have been processed then line 550 moves on out from the main loop.

560-600 remove the last letter from the screen by overwriting it with spaces.

610-630 wait for the space bar to be pressed.

670-690 restore the data and jump back to the start of the program.

CHARACTER 1

CHARACTER 3



700-720 data for a face

730-1260 data for the letters.

## Hints on conversion

This program can easily be converted to run on any machine which allows user-defined characters. The concept is for another machine will require

changing all the CALL statements and the DATA statements.

On the TI 99/4A computer the CALL statement is used to perform machine-dependent activities by calling built-in subroutines. In this program the following subroutines are used:

CALL CLEAR  
CALL SCREEN (N)

Clears the screen.  
Defines the background colour of the screen.

CALL COLOR (N,M,P)

Defines background colour (M) and foreground colour (P) of the group of characters (N). In this program we define the colours of characters 120-123 in line 180 and the colours of characters 120-123 in line 170.

CALL CHAR (N,X,Y)

Defines a position (given by X,Y) for character code N.

CALL HCHAR (Y,X,C,H)

Outputs the character with character code CH at the position (X,Y). The top-left hand corner of the screen is position (0,0).

CALL KEY  
(X,Y,STATUS)

Tests the keyboard to see if a key has been pressed. If a key has been pressed then a character value is returned in STATUS and the character code of the pressed key is placed in CH. If no key has been pressed, zero is returned in STATUS.

CALL SOUND (D,P,V)

Generates a sound of duration D, pitch P and volume V.

# TI 99/4A PROGRAM

The DATA statements supply data in the form of strings suitable for the subroutines CHAR. Converting the program

requires that this data be changed to a form suitable for the other machine.

Within the program char-

acters from the keyboard are held as strings, so is the ASCII character code. A conversion to another machine may require

that these be held as single character strings.

```

000 REM PAGES
010 REM
020 REM
030 REM
040 REM Clear screen and set up colours.
050 CALL CLEAR
060 CALL SCREEN(1)
070 CALL COLOR(16,7,1)
080 CALL COLOR(12,5,1)
090 REM Read in the characters to
    define a face
100 FOR I=0 TO 4
110 READ B
120 CALL CHAR(150+I,B)
130 NEXT I
140 REM Enter the main loop of the program.
150 LETTER=1
160 FOR I=0 TO 32 STEP 3
170 FOR J=0 TO 28 STEP 5
180 REM Read in characters to define
    the next letter.
190 FOR L=0 TO 4
200 READ B
210 CALL CHAR(127+L,B)
220 NEXT L
230 REM Display the next letter.
240 CALL HOME(12,12,128)
250 CALL HOME(14,14,124)
260 CALL HOME(12,12,128)
    GOTO 1
270 CALL KEY(1,CH,STATUS)
280 IF STATUS=0 THEN GOTO 290
290 IF CH=44-LEFT THEN GOTO 300
300 IF CH=74-LEFT THEN GOTO 310
310 CALL SOUND(100,225,0)
320 GOTO 270
330 REM Display a form for getting
    the correct answer.
340 CALL HOME(12,1,128)
350 CALL HOME(14,1,124)
360 CALL HOME(12,1,128)
370 CALL HOME(14,1,124)
380 REM Move onto the next letter.
390 LETTER=LETTER+1
400 REM If we have finished all the letters
    then exit the main loop.
410 IF LETTER=26 THEN GOTO
    420 NEXT I
430 NEXT J
440 REM Remove last letter from the screen.
450 CALL HOME(12,14,128)
460 CALL HOME(14,14,124)
470 CALL HOME(12,14,128)
480 CALL HOME(14,14,124)
490 REM Wait for a space to be input.
500 CALL KEY(1,CH,STATUS)
510 IF CH=32 THEN GOTO
520 CALL SOUND(100,440,0)
530 GOTO 400
540 REM Start the whole
    program again.
550 CALL HOME(12,12,128)
560 REM Wait for the user to input the
    correct letter : either UPPER or lower
570 REM
580 REM Data for a PAGE.
590 DATA 0100440000000000,0000000000000000
600 DATA 0000000000000000,0000000000000000
610 REM Letters A to Z : 4 characters each.
620 DATA 0000000000000000,0000000000000000
630 DATA 0000000000000000,0000000000000000
640 DATA 0000000000000000,0000000000000000
650 DATA 0000000000000000,0000000000000000
660 DATA 0000000000000000,0000000000000000
670 DATA 0000000000000000,0000000000000000
680 DATA 0000000000000000,0000000000000000
690 DATA 0000000000000000,0000000000000000
700 DATA 0000000000000000,0000000000000000
710 DATA 0000000000000000,0000000000000000
720 DATA 0000000000000000,0000000000000000
730 DATA 0000000000000000,0000000000000000
740 DATA 0000000000000000,0000000000000000
750 DATA 0000000000000000,0000000000000000
760 DATA 0000000000000000,0000000000000000
770 DATA 0000000000000000,0000000000000000
780 DATA 0000000000000000,0000000000000000
790 DATA 0000000000000000,0000000000000000
800 DATA 0000000000000000,0000000000000000
810 DATA 0000000000000000,0000000000000000
820 DATA 0000000000000000,0000000000000000
830 DATA 0000000000000000,0000000000000000
840 DATA 0000000000000000,0000000000000000
850 DATA 0000000000000000,0000000000000000
860 DATA 0000000000000000,0000000000000000
870 DATA 0000000000000000,0000000000000000
880 DATA 0000000000000000,0000000000000000
890 DATA 0000000000000000,0000000000000000
900 DATA 0000000000000000,0000000000000000
910 DATA 0000000000000000,0000000000000000
920 DATA 0000000000000000,0000000000000000
930 DATA 0000000000000000,0000000000000000
940 DATA 0000000000000000,0000000000000000
950 DATA 0000000000000000,0000000000000000
960 DATA 0000000000000000,0000000000000000
970 DATA 0000000000000000,0000000000000000
980 DATA 0000000000000000,0000000000000000
990 DATA 0000000000000000,0000000000000000

```





## How many zombies will it take to catch you?

You are stuck on the Island of Lost Souls along with a bunch of zombies who are too stupid to

They will always move blindly towards you, so by moving around you can get them to drop in the holes. Fortunately the ones I shot about the islands that need you don't drop any one around.

If you get rid of like numbers another list appears, so it's a matter of seeing how many you can solve with one.

Type in Phil Garratt's program for the Spectrum and you will be kept on the edge of your chair for the rest of the day.

There are three types of health-related quality of life (HRQL) measures:

100

I. — north  
 II. — north-west  
 I. — west

Response	Percentage
Yes	55%
No	45%

When the program refers to PRINT A and PRINT B, graphics A and graphics B should be printed.

The program itself is highly documented.

Health care and medicine is worth more than the last, so being an owner.

■ Available on cassette, with Allen, at £1 from Phil Gerrard, 112 Avenue Road, London N15 5ST

```

9 LET A=2.5
10 DIM B(10)
11 DIM C(10)
12 DIM D(10)
13 DIM E(10)
14 DIM F(10)
15 DIM G(10)
16 DIM H(10)
17 DIM I(10)
18 DIM J(10)
19 DIM K(10)
20 DIM L(10)
21 DIM M(10)
22 DIM N(10)
23 DIM O(10)
24 DIM P(10)
25 DIM Q(10)
26 DIM R(10)
27 DIM S(10)
28 DIM T(10)
29 DIM U(10)
30 DIM V(10)
31 DIM W(10)
32 DIM X(10)
33 DIM Y(10)
34 DIM Z(10)
35 DIM AA(10)
36 DIM AB(10)
37 DIM AC(10)
38 DIM AD(10)
39 DIM AE(10)
40 DIM AF(10)
41 DIM AG(10)
42 DIM AH(10)
43 DIM AI(10)
44 DIM AJ(10)
45 DIM AK(10)
46 DIM AL(10)
47 DIM AM(10)
48 DIM AN(10)
49 DIM AO(10)
50 DIM AP(10)
51 DIM AQ(10)
52 DIM AR(10)
53 DIM AS(10)
54 DIM AT(10)
55 DIM AU(10)
56 DIM AV(10)
57 DIM AW(10)
58 DIM AX(10)
59 DIM AY(10)
60 DIM AZ(10)
61 DIM BA(10)
62 DIM BB(10)
63 DIM BC(10)
64 DIM BD(10)
65 DIM BE(10)
66 DIM BF(10)
67 DIM BG(10)
68 DIM BH(10)
69 DIM BI(10)
70 DIM BJ(10)
71 DIM BK(10)
72 DIM BL(10)
73 DIM BM(10)
74 DIM BN(10)
75 DIM BO(10)
76 DIM BP(10)
77 DIM BQ(10)
78 DIM BR(10)
79 DIM BS(10)
80 DIM BT(10)
81 DIM BU(10)
82 DIM BV(10)
83 DIM BW(10)
84 DIM BX(10)
85 DIM BY(10)
86 DIM BZ(10)
87 DIM CA(10)
88 DIM CB(10)
89 DIM CC(10)
90 DIM CD(10)
91 DIM CE(10)
92 DIM CF(10)
93 DIM CG(10)
94 DIM CH(10)
95 DIM CI(10)
96 DIM CJ(10)
97 DIM CK(10)
98 DIM CL(10)
99 DIM CM(10)
100 DIM CN(10)
101 DIM CO(10)
102 DIM CP(10)
103 DIM CQ(10)
104 DIM CR(10)
105 DIM CS(10)
106 DIM CT(10)
107 DIM CU(10)
108 DIM CV(10)
109 DIM CW(10)
110 DIM CX(10)
111 DIM CY(10)
112 DIM CZ(10)
113 DIM DA(10)
114 DIM DB(10)
115 DIM DC(10)
116 DIM DD(10)
117 DIM DE(10)
118 DIM DF(10)
119 DIM DG(10)
120 DIM DH(10)
121 DIM DI(10)
122 DIM DJ(10)
123 DIM DK(10)
124 DIM DL(10)
125 DIM DM(10)
126 DIM DN(10)
127 DIM DO(10)
128 DIM DP(10)
129 DIM DQ(10)
130 DIM DR(10)
131 DIM DS(10)
132 DIM DT(10)
133 DIM DU(10)
134 DIM DV(10)
135 DIM DW(10)
136 DIM DX(10)
137 DIM DY(10)
138 DIM DZ(10)
139 DIM EA(10)
140 DIM EB(10)
141 DIM EC(10)
142 DIM ED(10)
143 DIM EE(10)
144 DIM EF(10)
145 DIM EG(10)
146 DIM EH(10)
147 DIM EI(10)
148 DIM EJ(10)
149 DIM EK(10)
150 DIM EL(10)
151 DIM EM(10)
152 DIM EN(10)
153 DIM EO(10)
154 DIM EP(10)
155 DIM EQ(10)
156 DIM ER(10)
157 DIM ES(10)
158 DIM ET(10)
159 DIM EU(10)
160 DIM EV(10)
161 DIM EW(10)
162 DIM EX(10)
163 DIM EY(10)
164 DIM EZ(10)
165 DIM FA(10)
166 DIM FB(10)
167 DIM FC(10)
168 DIM FD(10)
169 DIM FE(10)
170 DIM FF(10)
171 DIM FG(10)
172 DIM FH(10)
173 DIM FI(10)
174 DIM FJ(10)
175 DIM FK(10)
176 DIM FL(10)
177 DIM FM(10)
178 DIM FN(10)
179 DIM FO(10)
180 DIM FP(10)
181 DIM FQ(10)
182 DIM FR(10)
183 DIM FS(10)
184 DIM FT(10)
185 DIM FU(10)
186 DIM FV(10)
187 DIM FW(10)
188 DIM FX(10)
189 DIM FY(10)
190 DIM FZ(10)
191 DIM GA(10)
192 DIM GB(10)
193 DIM GC(10)
194 DIM GD(10)
195 DIM GE(10)
196 DIM GF(10)
197 DIM GG(10)
198 DIM GH(10)
199 DIM GI(10)
200 DIM GJ(10)
201 DIM GK(10)
202 DIM GL(10)
203 DIM GM(10)
204 DIM GN(10)
205 DIM GO(10)
206 DIM GP(10)
207 DIM GQ(10)
208 DIM GR(10)
209 DIM GS(10)
210 DIM GT(10)
211 DIM GU(10)
212 DIM GV(10)
213 DIM GW(10)
214 DIM GX(10)
215 DIM GY(10)
216 DIM GZ(10)
217 DIM HA(10)
218 DIM HB(10)
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## SPECTRUM PROGRAM

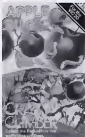
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Case	Year	Country	Population	Age	Gender	Occupation	Education	Marital Status	Religion	Health Status	Family Size	Income	Assets	Debt	Health Insurance	Life Insurance	Disability Insurance	Retirement Savings	Charitable Contributions	Other
1	2010	USA	100	35	Male	Engineer	High School	Married	Protestant	Good	3	\$50,000	\$100,000	\$50,000	Yes	Yes	Yes	Yes	\$1,000	None
2	2010	USA	100	45	Female	Teacher	High School	Married	Catholic	Good	2	\$40,000	\$80,000	\$40,000	Yes	Yes	Yes	Yes	\$500	None
3	2010	USA	100	55	Male	Farmer	High School	Married	Protestant	Good	4	\$30,000	\$60,000	\$30,000	Yes	Yes	Yes	Yes	\$200	None
4	2010	USA	100	65	Female	Retired	High School	Married	Catholic	Good	2	\$20,000	\$40,000	\$20,000	Yes	Yes	Yes	Yes	\$100	None
5	2010	USA	100	75	Male	Retired	High School	Married	Protestant	Good	2	\$10,000	\$20,000	\$10,000	Yes	Yes	Yes	Yes	\$50	None
6	2010	USA	100	85	Female	Retired	High School	Married	Catholic	Good	2	\$5,000	\$10,000	\$5,000	Yes	Yes	Yes	Yes	\$25	None
7	2010	USA	100	95	Male	Retired	High School	Married	Protestant	Good	2	\$2,000	\$4,000	\$2,000	Yes	Yes	Yes	Yes	\$10	None
8	2010	USA	100	105	Female	Retired	High School	Married	Catholic	Good	2	\$1,000	\$2,000	\$1,000	Yes	Yes	Yes	Yes	\$5	None
9	2010	USA	100	115	Male	Retired	High School	Married	Protestant	Good	2	\$500	\$1,000	\$500	Yes	Yes	Yes	Yes	\$2	None
10	2010	USA	100	125	Female	Retired	High School	Married	Catholic	Good	2	\$250	\$500	\$250	Yes	Yes	Yes	Yes	\$1	None

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Age Group	Percentage
18-24	10%
25-34	20%
35-44	25%
45-54	20%
55-64	15%
65-74	10%
75-84	5%
85+	5%

## Abstract





# Software with an international touch

Melbourne House's Australian managing director Fred Milgrom was in England for only a few days before flying off again to visit the company's office in Los Angeles. "I do have a home, in Australia", he grinned, "but I'm not there very much at the moment".

An internationalist at Melbourne House is not large. Originally founded in the U.S. as a books publisher, it now has 20 employees scattered around the U.K., U.S. and Australia.

Nevertheless, the company has made quite an impact over here. Several of the programs it developed are among W. H. Smith's Top 20 best-sellers, headed by *The Hobbit*, an adventure game which, in the four months since it was launched, has become a legend in the software world.

But when Fred Milgrom started out in business back in 1977, he had no idea that he would end up getting involved in computers. He set out with "three and a half" employees, publishing handbooks, novels by authors such as Gerald Durrell, who wrote *Melencourt*, and Robin Mowat, of *French Connection* fame.

Then in 1980 Spector's Z800 was launched on an computing world. Milgrom, who had taken a PhD in chemistry, maths and physics in Australia, and who had "always been interested in computers", decided to try and publish a collection of 30 programs for the Z800. This was, he reckons, the first book to be brought out for the machine.

In 1980, before the home computer boom had begun, selling a book of software through ordinary bookshops was out of the question — "they would have laughed at it". So ads were placed in the only two computer magazines in existence at the time, and to Milgrom's surprise, the book turned out to be a "surprise success".

More books for the Z800 followed and, in February 1981, Melbourne House brought out its first program cassette — a twelve-line version of *Space Invaders*.

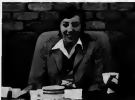
**In America, Europe and Japan, computer fans play Melbourne House games. But there are problems as well as advantages to being a multinational software company. Fred Milgrom, of Melbourne House, talked to Candice Goodwin about his company's plans, and the obstacles it has to overcome**

Milgrom remembers with amazement the "amazing combinations that were needed to write programs in the early days". The discipline of programming to the limitations of the Z800 has, he believes, stood Melbourne House's programmers in good stead, enabling them to write tighter, more economical software than their rivals.

Though it was Spector's launch of the Z800 that took Melbourne House into the software market in the first place, its follow-up launch of the Z801 in early 1981 nearly finished the company off again.



Fred Milgrom of Melbourne House. "I think people are happier if they can work where they want".



Terecia Maylin, executive programmer at the Melbourne office.

## PROFILE

"The demand for books for the ZX80 fell overnight," according to Milgrom. At that time Melbourne House's business was in books rather than machines, so they were a serious setback.

But as US sales saved the day, The ZX80 did not hit the US market until a couple of months later, and continuing sales of ZX80 products in the States saved the company once as it finally brought out products for the new Sinclair machines.

"Then in March 1982 they did it again with the Spectrum," but by then Melbourne House had started to reorganise itself against this kind of devastating fluctuation in the market.

It now spreads its products across several different countries and machines, selling books and software in Japan, Australia and Europe as well as the US and UK.

It aims for the TRS-80, the VIC-20, the Dragon and Spectrum as well as the ZX81.

"By establishing more than one market, setting up marketing and distribution organisations overseas and becoming more professional, we're trying to keep one step ahead, so in five years time we'll still be around."

But what about the language problems of selling software in so many different countries? Isn't a lot of translation involved? Milgrom says not.

Through the paper documentation, a quickly translated into the appropriate language. English has become a kind of universal language for arcade games. "Even in Japan, they recognise English words like score and fire".

Without quoting specific figures, Milgrom will say that Melbourne House's turnover has doubled each year over the three years that it has been in the



Programming Down Under — From left to right, Alan Blair, John Under, Philip Mitchell

microcomputing market. "And in January, we sold 30% of what we sold in the whole of 1982".

But he does not let software publishing be the source of instant wealth as it sometimes tends to be. "It may be a get-rich-quick business for people who are not committed to staying in the industry. We are committed as publishers, rather than as individuals with a good idea".

He sees profit margins on software being slashed over the coming couple of years, and less emphasis on small software firms. "It's interesting that large companies like Thorn EMI, with a lot of money, are coming into the market. I think they'll end up dominating it".

This is, he says, already happening in the US, where video games are widely advertised on TV and companies may spend \$4 million on promoting a single game.

But according to Milgrom, home computing means rather different things in the UK and the US. "I think the UK's more computer-literate. People are prepared to put more time into it, while people in the US are more casual about it".

"They don't like identity left over — they want plain, crisp, so that they can plug them in and go straight away".

Though the Sinclair machines still make up most of the home market over here, as the US Melbourne House sells more software for the VIC-20 and TRS-80, through big chains like Compuserve. "There's no equivalent to stores like Sainsbury in the US".

Selling software for the Sinclair machines presents problems because, although three-quarters of a million ZX81s have been sold in the UK, "the computer community don't take it

seriously — the Sinclair aren't seen as computers".

As a result, Compuserve won't stock the ZX81 for the TS 8000, as it is known over there. It is mainly sold through discount stores — without the software, which is sold by mail order.

To complete matters still further, mail order in the States is not just a matter of advancing to the computer press. "Mail order there is not through the magazines but by establishing a rapport with the users. The emphasis is more on direct mail".

"Now companies here follow up on computer sales. Follow up is more common in the States. And the reputation of the company is more important over there". Milgrom is currently trying to set up a network of representatives and warehouses in the US.

As a company that started in the UK, Melbourne House's reputation is bound to take time to build up in the States. On the other hand, it has the advantage that "the US market is bigger behind the UK market". According to Milgrom, US software is currently better quality, despite the "big banks" going into software production in the US.

Melbourne House employs five full-time programmers, some of whom (British and some Australian, but none from the US — yet) it also says "are many freelancers as we can't lay our heads on".

Most of the programmers are computer science graduates in their middle twenties, but two of them, Clifford Abraham and Clifford Ransome, are still at school.

Rather than being concentrated in a few central offices, the company's employees are scattered in the countries it operates in, and some of them work from home.

"It seems silly for a high technology company to be rural. I think people are happier if they can work where they want, and everyone works very hard. There's that relationship of trust".

The company "puts a whole lot of work into maintaining careers", and aims to maintain a reputation for high-quality products. Milgrom thinks that software is moving towards "more elaborate storyline games, that aren't over in five minutes — more imaginative and interesting graphics".

All these things set apart The Hobbit, the adventure game that took two of Melbourne House's people 34 months to complete. "We didn't think that the current adventure games were very exciting. We set ourselves a more interesting challenge".

One of the programmes involved in producing The Hobbit had taken a combined degree in English literature and computing, while the other courses that enable the program to accept quite complex English sentences.

The concept of "friend" and "enemy" is also built into the program, so that if you are unfriendly to one of the characters, he will be unfriendly back for the rest of the game.

But what Milgrom most likes about The Hobbit is that "the characters have independent life — they can behave quite independently".

Melbourne House may well use the concepts developed in The Hobbit for other adventure games. Meanwhile, among its forthcoming releases is a "4-D" (3-D in real time) game set in the jungle, in which the player must fight off savage beasts. "When the sun sets, all you can see is the whites of their eyes".



Linda Under takes care of publicity



And Christine Laughlin is UK Sales Director







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